*Barr's Buffon.*

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# Buffon's Natural Hiſtory.

CONTAINING

A THEORY OF THE EARTH,

A GENERAL

*HISTORY OF MAN,*

OF THE BRUTE CREATION, AND OF
VEGETABLES, MINERALS,
*&c. &c.*

FROM THE FRENCH.

WITH NOTES BY THE TRANSLATOR.

IN TEN VOLUMES.

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# BUFFON'S
# NATURAL HISTORY.

## *OF CARNIVOROUS ANIMALS.*

### OF TIGERS.

AS the word Tiger is a generic name, given ſeveral animals of different ſpecies, it is proper to begin with diſtinguiſhing them from each other. Leopards and Panthers have often been confounded, and are called Tigers by moſt travellers. The Ounce, a ſmall ſpecies of Panther, which is eaſily tamed, and uſed by the Orientals in the chace, has been taken for the Panther itſelf, and deſcribed as ſuch by the name of Tiger. The Lynx, and that called the Lion's provider, have alſo ſometimes received the name of Panther, and ſometimes Ounce. In Africa, and in the ſouthern parts of Aſia, theſe animals are common; but the real tiger is ſcarce, was little known by the ancients, and is badly deſcribed by the moderns. Ariſtotle does not mention him; and Pliny merely ſpeaks of him as an animal of prodigious velocity; adding, that he was a much more ſcarce animal than the Panther, ſince Auguſtus preſented the firſt to the Romans at the dedication of the Theatre to Marcellus, while ſo early as the time of Scaurus, the Ædile, 150 panthers were preſented, and afterwards 400 by Pompey, and 420 by Auguſtus, at the public ſhews at Rome. Pliny, however, gives no deſcription of the tiger, or any of its characteriſtics. Oppian and Solinus appear to be the firſt who obſerved that the tiger is marked with long ſtreaks, and the panther with round ſpots. This, indeed, is one of the characteriſtics which diſtinguiſh the true tiger from a number of animals that have been ſo called. Strabo, in ſpeaking of the real tiger, gives Megaſthenes as his authority, for ſaying that in India there are tigers twice as large as the lion. The tiger then ſtands deſcribed by the ancients as an animal that is fierce and ſwift, marked with long ſtripes, and exceeding the lion in ſize ; nor has Geſner, nor the other modern naturaliſts, who have treated of the tiger, added any thing to theſe obſervations of the ancients.

All thoſe ſkins, of which the hair is ſhort, and are marked with round and diſtinct ſpots, are called tiger-ſkins, and travellers countenancing this falſe denomination, have called all animals ſo marked by the general name of tigers ; even the Academy of Sciences have been borne away with this torrent, and have adopted the appellation to all, altho' by diſſection they found them materially to differ.

The moſt general cauſe, as we intimated in the article of the lion, of theſe ambiguous terms in Natural Hiſtory, aroſe from the neceſſity of giving names to the unknown productions of the New World, and thus the animals were called after ſuch of the old continent to whom they had the ſmalleſt reſemblance. From the general denomination of tiger to every animal whoſe ſkin was ſpotted, inſtead of one ſpecies of that name, we now have nine or ten, and conſequently the hiſtory of theſe animals is exceedingly embarraſſed, writers having applied to one ſpecies what ought to have been aſcribed to another.

To diſpel the confuſion which neceſſarily reſults from theſe erroneous denominations, particularly among thoſe which have been commonly called tigers, I have reſolved to give a comparative enumeration of quadrupeds, in which I ſhall diſtinguiſh, 1. Thoſe which are peculiar to the old continent, and were not found in America when firſt diſcovered. 2. Thoſe which are natives of the new continent, and were unknown in the old. 3. Thoſe which exiſted alike in both continents, without having been carried from one to the other by man. For which purpoſe it has been neceſſary to collect and arrange the ſcattered accounts given by the firſt travellers to, and hiſtorians of, America.

## ANIMALS OF THE OLD CONTINENT.

AS the largeſt animals are the beſt known, and about which there is the leaſt uncertainty, in this enumeration they ſhall follow nearly according to their ſize.

Elephants belong to the Old World; the largeſt are found in Aſia, and the ſmalleſt in Africa. They are natives of the hotteſt climates, and, though they will live, they cannot multiply in temperate ones; they do not propagate even in their own countries after they are deprived of their liberty. Though confined to the ſouthern parts of the old continent their ſpecies is numerous. It is unknown in America, nor is there any animal there that can be compared to it in ſize and figure. The ſame remark applies to the Rhinoceros, which is leſs numerous than the elephant; he is confined to the deſarts of Africa, and the foreſts in the ſouthern parts of Aſia; nor has America any animal that reſembles him.

The Hippopotamus inhabits the banks of the large rivers of India and Africa only, and is leſs numerous than the Rhinoceros.

The Camel and Dromedary are very common in Aſia and Arabia, and in all the eaſtern parts of the ſouthern continent. The name of camel has been given to the Lama and Pacos of Peru, which are ſo different from the camel as by ſome to have been called *ſheep*, and by others *camels* of Peru; though the pacos has nothing in common with the European ſheep but the wool, and the lama reſembles the camel only by the length of its neck. The Spaniards formerly carried camels to Peru; but the climate of the new world does not ſeem ſavourable to them, for though they produced, their numbers have always remained very ſmall.

The Giraffe, or Cameleopard, an animal remarkable for its height, and the length of its neck and fore legs, is a native of Africa, particularly Ethiopia, and has never ſpread beyond the tropics in the temperate climates of the old continent.

In the preceding article we have ſeen that the lion exiſts not in America, and that the puma of Peru is an animal of a different ſpecies; and we ſhall now find that the tiger and panther belong alſo to the old continent, and that the animals of South America, to whom thoſe names have been applied, are alſo different. The real tiger is a terrible animal, and more, perhaps, to be dreaded than the lion himſelf. His ferocity is beyond compariſon; but an idea of his ſtrength may be drawn from his ſize; he is generally from four to five feet high, and from nine to fourteen in length, without including his tail; his ſkin is not covered with round ſpots, but with black ſtripes upon a yellow ground, which extend acroſs the body, and form rings from one end of the tail to the other. Theſe characteriſtics alone are ſufficient to diſtinguiſh him from all the animals of prey belonging to the new continent, as the largeſt of them ſcarcely ever exceed the ſize of our maſtiffs. The leopard and panther of Africa and Aſia, though much ſmaller than the tiger, are larger than the rapacious animals of South America. Pliny, whoſe teſtimony cannot be doubted (as panthers were daily expoſed, in his time, at the theatres in Rome), indicates their eſſential characteriſtics, by ſaying, their hair is whitiſh, diverſified throughout with black ſpots, like eyes, and that the only difference between the male and female was the ſuperior whiteneſs of her hair.

The American animals, which have been called tigers, have a greater reſemblance to the panther, and yet their difference from that ſpecies is very evident. The firſt is Jaguara, or Janowra, a native of Guiana, Braſil, and other parts of South America. Ray, with ſome propriety, named the animal the Pard, or Braſilian lynx. The Portugueſe called him Ounce, becauſe they had firſt, by corruption, given that name to the lynx, and afterwards to the ſmall panther of India; and the French, without his having the ſmalleſt affinity, have called him tiger. He differs alſo from the panther in ſize, in the poſition and figure of the ſpots, the colour and length of the hair, which is frizzled when young, and never ſo ſtraight as that of the panther, differing alſo in diſpoſition, being more ſavage, and cannot be tamed. The ſecond we call Cougar, by contracting the Braſilian name *cuguacu-ara*, and which the French, with more propriety, have called the Red Tiger. From the real tiger it differs in all, and from the panther in moſt reſpects, its hair being red, and without ſpots; and in the form of its head, and length of its muzzle, it differs alſo from them both. A third ſpecies, which has been called tiger, though equally remote, is the Jaguarate, which is nearly of the ſize of the jaguar, and reſembles him in natural habits, but differs in ſome exterior characters. He has been called black tiger, becauſe his hair is blackiſh, interſperſed with ſpots of a blacker hue. Beſides theſe three ſpecies, and perhaps a fourth, which is ſmaller, that have been named after the tiger, there is another American animal, which appears to have a greater right to it, namely, the *Cat-pard*, or mountain cat, which reſembles both the cat and the panther. Though ſmaller than either of the above three animals, it is larger than the wild cat, which it reſembles in figure, but its tail is much ſhorter, and it differs alſo by having its hair diverſified with black ſpots, long upon the back and round upon the belly. Theſe four American animals have, therefore, very improperly been named tigers. The cougar and cat-pard I have ſeen alive, and am convinced they are of different ſpecies, and ſtill more ſo from the tiger or panther; and as for the puma and jaguar, it is evident, from the teſtimony of thoſe who have ſeen them, that the former is not a lion, nor the latter a tiger, and therefore, without ſcruple, we may pronounce, that neither the lion, tiger, nor even the panther, exiſt in America, any more than the elephant, rhinoceros, hippopotamus, camel, or the cameleopard. All theſe ſpecies require a hot climate for propagation, and as none of them exiſt in the northern regions, it is impoſſible they ſhould have had any communication with America. This general fact is too important not to be ſupported by every proof; we ſhall, therefore, continue our comparative enumeration of the animals of the old continent with thoſe of the new.

It is generally known, that upon horſes being firſt tranſported into America they ſtruck the natives with ſurpriſe and terror; and that this animal has thriven and multiplied ſo faſt, as to have become almoſt as numerous there now as it is in Europe. It is the ſame alſo with the aſs, from which mules have been produced, that are more ſerviceable than the lamas for carrying heavy loads over the mountainous parts of Chili and Peru. The Zebra is alſo an animal of the old continent, and which, perhaps, has never been even ſeen in the new; it ſeems to affect a particular climate, and is found only in that part of Africa which lies between the Equator and the Cape of Good Hope.

Oxen were unknown in the iſlands on the continent of South America. Soon after the diſcovery of theſe countries, the Spaniards tranſported bulls and cows to them from Europe. In 1550 oxen were employed, for the firſt time, in labouring the ground in the valley of Cuſco. On the continent theſe animals multiplied prodigiouſly, as well as in the iſlands of St. Domingo, Cuba, &c. and in many places they even became wild. The ſpecies of horned cattle found at Mexico, Louiſiana, &c. called the Biſon, is not produced from the European oxen. The biſon exiſted in America before our race were carried thither; and from the latter he is ſo different as to authorize the opinion of his being a different ſpecies. He has a riſe between his ſhoulders, his hair is ſofter than wool, is longer before than behind, is curled upon the neck and along the ſpinal bone; he is of a brown colour, and faintly marked with ſome whitiſh ſpots; he has alſo ſhort legs, which, like the head and neck, are covered with long hair; and the male has a long tail with a tuft of hair at the end, like that of the lion. Theſe differences ſeem to be ſufficient grounds for conſidering the ox and biſon of different ſpecies, yet I will not pretend to determine they are ſo, becauſe the only characteriſtic which identifies animals to be of the ſame ſpecies, is their propagating and producing ſimilar individuals, and which fact has never been determined between the biſon and the oxen of Europe. M. de la Nux, a member of the royal council of the iſle of Bourbon, has favoured me with a letter, in which he ſays, the hunched-back ox of that iſland propagates with the common horned cattle; and of great advantage would it be, if perſons who live in remote countries would follow the example of this gentleman, in making experimental obſervations upon animals. Nothing could be more eaſy than for the inhabitants of Louiſiana, to try if the American biſon would copulate with the European cow. It is probable they would produce together, and in that caſe it would be aſcertained that the European ox, the hunched-backed ſpecies of the iſle of Bourbon, the Eaſt-India bull and American biſon, form only one ſpecies. M. de la Nux proved by experiments, that the bunch is not an eſſential characteriſtic, but that it will diſappear after a few generations; and I have myſelf diſcovered that the protuberance upon a camel's back, which, though as in the biſon, is very common, is not a conſtant characteriſtic, and is probably owing to the ſtate of the body, as I once ſaw a ſickly camel which had not the ſmalleſt appearance of a lump. As to the other difference, namely, the hair being more long and ſoft, that may be entirely owing to the influence of the climate, as is the caſe with goats, hares, and rabbits. With ſome appearance of probability, it may be ſuppoſed, (eſpecially if the American biſon produces with the European cow) that our oxen may have found a paſſage over the northern diſtricts to thoſe of North America, and having afterwards advanced into the temperate regions of this New World, they received the impreſſions of the climate, and in time became biſons. But till the eſſential fact of their producing together be fully confirmed, I think it right to conclude that our oxen belong to the old continent, and exiſted not in America before they were carried thither.

To the ſheep America has no pretenſions; they were tranſported from Europe, and have thriven both in the warm and temperate climates; but, however prolific, they are commonly more meagre, and their fleſh leſs juicy and tender than thoſe in Europe. Braſil ſeems to be the moſt favourable to them, as it is there alone they are found loaded with fat. As well as European, Guinea ſheep have been tranſported to Jamaica, and they have proſpered equally well. Theſe two ſpecies belong ſolely to the old continent. It is alſo the ſame with goats, and thoſe we now meet with in America in ſuch great numbers, originated all from goats introduced from Europe. The latter has not, however, multiplied ſo faſt at Braſil as the ſheep. When the Spaniards firſt carried goats to Peru they were ſo rare as to be ſold for 110 ducats a-piece; but afterwards they multiplied ſo prodigiouſly as to be held of little value but for their ſkins; they produce there from three to five kids at a time, while in Europe they ſeldom have more than one or two. In all the iſlands they are equally numerous as on the continent. The Spaniards tranſported them even into the iſlands of the South Sea; and in the iſland of Juan Fernandez their increaſe became prodigious. But proving a ſupply of proviſions to the freebooters who afterwards infeſted thoſe parts, the Spaniards reſolved to extirpate them, and for that purpoſe put dogs upon the iſland, who, multiplying in their turn, not only deſtroyed all the goats in the acceſſible parts, but became ſo fierce as to attack even men.

The hogs which were tranſported from Europe to America ſucceeded better, and multiplied faſter, than the ſheep or goat. The firſt ſwine, according to Garcilaſſo, ſold ſtill dearer than the firſt goats. Piſo ſays the fleſh of the ox and ſheep is not ſo good at Braſil as in Europe, but that of the hog, which multiplies very faſt, is better; and Laet, in his Hiſtory of the New World, affirms that it is preferable at St. Domingo, to what it is in Europe. In general it may be remarked, that of all domeſtic animals which have been carried from Europe to America, the hog has thriven the beſt and moſt univerſally. In Canada and in Braſil, which includes the warmeſt and coldeſt climates of the new world, the hogs multiply, and their fleſh is equally good; while the goat, on the contrary, multiplies in warm and temperate climates only, and cannot maintain its ſpecies in Canada without continual ſupplies. The aſs multiplies in Braſil, Peru, &c. but not in Canada, where neither mules nor aſſes are to be ſeen, although numbers of the latter have been tranſported thither in couples. Horſes have multiplied nearly as much in the hot as in the cold countries throughout America; but have diminiſhed in ſize, a circumſtance which is common to all animals tranſported from Europe to America; and what is ſtill more ſingular, all the native animals of America are much ſmaller in general than thoſe of the old continent. Nature in their formation ſeems to have adopted a ſmaller ſcale, and to have formed man alone in the ſame mould. But to proceed in our enumeration:—The hog, then, is not a native of America, but was carried thither; and he has not only increaſed in a domeſtic ſtate but has even become wild, and multiplied in the woods without the aſſiſtance of man. A ſpecies of hog has alſo been tranſported from Guinea to Braſil, which has alſo multiplied; it is much ſmaller, and ſeems to form a diſtinct ſpecies from the European hog; for although the climate of Braſil is favourable to every kind of propagation, theſe animals have never been known to intermix.

Dogs, whoſe races are ſo varied, and ſo numerouſly diffuſed, were not found in America, unleſs in a few rude reſemblances, which it is difficult to compare with the ſpecies at large. At St. Domingo, ſays Garcilaſſo, there were little animals called *goſques*, not unlike little dogs; but there were no dogs like thoſe of Europe. He adds, that the latter, on being tranſported to Cuba and St. Domingo, had became wild, and diminiſhed the number of cattle which had become wild alſo; that they committed their devaſtations in troops of ten or twelve, and were more deſtructive than wolves. According to Joſeph Acoſta, there were no real dogs in the Weſt Indies, but only an animal reſembling ſmall dogs, which at Peru the natives call *alcos*, which attach themſelves to their maſters, and ſeem to have nearly the ſame diſpoſitions as the dog. If we may believe Father Charlevoix, who quotes no authority, "The *goſchis* of St. Domingo were little mute dogs, which ſerved as an amuſement to the ladies, and were alſo employed in the chace of other animals. Their fleſh was good for eating, and they were of great benefit to the Spaniards at the firſt famines; ſo that they would have been exhauſted, had there not been numbers of them afterwards brought from the continent. Of this animal there were ſeveral ſorts; of ſome the hair was ſtraight, others had their bodies covered with a wool exceedingly ſoft, but the greateſt number had only a thin covering of tender down. In colours they exceeded the varieties in the European dogs, forming an aſſemblage of all colours, the moſt lively not excepted."

If this ſpecies of the goſchis ever exiſted, eſpecially as deſcribed by Father Charlevoix, why have other authors never mentioned it? why does it no longer exiſt? or if in exiſtence, by what means has it loſt all its beautiful peculiarities? It is moſt likely that this goſchis of Charlevoix, and of which he never found the name but in Father Pers, is the goſques of Garcilaſſo; and it is alſo probable that theſe goſques of St. Domingo, and the alcos of Peru, are the ſame animal; for certain it is, that of all American animals this has the moſt affinity to the European dog. Several authors have ſo conſidered them, and Laet expreſsly ſays, that when the Weſt Indies were diſcovered they employed a ſmall dog in hunting, but which was abſolutely dumb. We obſerved, in the hiſtory of the dog, that he loſes the faculty of barking in hot countries, but inſtead thereof they have a kind of howl, and are not like theſe American animals, perfectly mute. European dogs have thriven equally well in the hot and cold climates of America, and of all animals they are held in the higheſt eſtimation by the ſavages; but they have undergone eſſential changes, for in hot countries they have loſt their voice, in cold ones they have decreaſed in ſize, and in general their ears have become ſtraight. Thus they have degenerated, or rather returned to their primitive ſpecies, the ſhepherd's dog, whoſe ears are erect, and who barks the leaſt. From whence we may conclude, that the dogs belong to the old continent; where their nature has been developed in the temperate regions only, and where they appear to have been varied and brought to perfection by the care of man, for in all uncivilized countries, and in very hot or cold climates, they are ugly, ſmall, and almoſt mute.

The Hyæna is nearly the ſize of the wolf, and was known to the ancients. It is remarkable for having an opening between the anus and tail, like the badger, and from which iſſues a humour that has a ſtrong ſmell; alſo for a long briſtly mane which runs along its neck; and for a voracity which prompts it to ſcrape up graves and devour the moſt putrid bodies.

This horrid animal is only to be found in Arabia, and other ſouthern provinces of Aſia.

The Jackall, which makes the neareſt approach to the dog, though differing in every eſſential characteriſtic, is very common in Armenia and Turkey, and is very numerous in ſeveral other provinces of Aſia and Africa; it is about the ſize of the fox, and of a very brilliant yellow; this animal has not extended to Europe, nor even the northern parts of Aſia.

The Genet, being a native of Spain, would doubtleſs have been noticed had he been found in America, but that not being the caſe, we may conſider him as peculiar to the old continent; he inhabits the ſouthern parts of Europe, and thoſe of Aſia under the ſame latitude.

Though it has been ſaid the Civet was found in New Spain, I am of opinion it was not the African, or Indian civet, which yields the muſk that is mixed and prepared with that of the animal called Hiam; this civet I conceived to belong to the ſouthern part of the old continent, has never extended to the north, and conſequently would not have found a paſſage to the New World.

Cats as well as dogs were entire ſtrangers to the New Continent, and though I formerly mentioned that a huntſman had taken to Columbus a cat which he had killed in the woods of America, I am now convinced that the ſpecies did not then exiſt there. I was then leſs aware of the abuſes which had been made in names, and I acknowledge I am not yet ſufficiently acquainted with animals to diſtinguiſh them with preciſion in the fictitious and miſapplied denominations given them by travellers. Nor is this to be wondered at, ſince the nomenclators, whoſe reſearches were directed to this object, have rendered it more dark and intricate by their arbitrary names and arrangements. To the natural propenſity of comparing things which we ſee for the firſt time with thoſe already known, the almoſt inſuperable difficulty of pronouncing the American names being added, are we to impute this miſapplication of names which has ſince been productive of ſo many errors. It is much more eaſy, for example, to call a new animal, a *wild boar*, than to pronounce its name at Mexico, *quauh-coyamelt*; to call another *American fox*, than to retain its Braſilian appellation, *tamandua-guacu*, to give the name of *Peruvian ſheep*, or *camels*, to thoſe animals which in the language of Peru are called *pelou jehialt-oquitli*. It is the ſame with almoſt all the other animals of the New World, whoſe names were ſo ſtrange and barbarous to the Europeans, that they endeavoured to apply others to them, from the reſemblance they had to thoſe of the old continent, but they were often from affinities too remote to juſtify the application. Five or ſix ſpecies of ſmall animals were named hares, or rabbits, merely becauſe their fleſh was palatable food. They called *cow* and *elk* an animal without horns, although it had no affinity to either, except a ſmall reſemblance in the form of the body. But it is unneceſſary at preſent to dwell upon the falſe denominations which have been applied to the animals of America, becauſe I ſhall endeavour to point them out when we come to treat of each of thoſe animals in particular.

We find, then, that all our domeſtic animals, and the largeſt animals of Aſia and Africa, were unknown in the New World; and the ſame remark extends to ſeveral of the leſs conſiderable ſpecies.

The Gazelles, of which there are various kinds, and of which ſome belong to Arabia, others to the Eaſt Indies, and ſome to Africa, all require an hot climate to ſubſiſt and multiply, they therefore never extended to the northern climates, ſo as to obtain a paſſage to America ; it appears, indeed, that the African gazelle, and which Hernandes, in his Hiſtory of Mexico calls *algazel ex Aphrica* muſt have been tranſported thither. The animal of New Spain, which the ſame author calls *temamaçame*, Seba *cerous*, Klein *tragalus*, and Briſſon the gazelle of New Spain, appears to be a different ſpecies to any on the old continent.

It is natural to conclude, that the Chamois Goat, which delights in the ſnow of the Alps, would not be afraid of the icy regions of the north, and thence might have paſſed to America, but no ſuch animal is found there. This animal affects not only a particular climate, but a particular ſituation. He is attached to the tops of the Alpine, Pyrenean, and other lofty mountains, and never deſcends even to the plains at the bottom of them ; but in this he is not ſingular, as the marmot, wild goat, bear, and lynx, are alſo mountain animals, and very rarely found in the plains.

The Buffalo is a native of hot countries, and has been rendered domeſtic in Italy ; he reſembles the American biſon leſs than the ox, and is unknown in the new continent. The Wild Goat is found on the tops of the higheſt mountains of Europe and Aſia, but was never ſeen in the Cordeliers. The Muſk-animal, which is nearly the ſize of a fallow-deer, inhabits only a few particular countries of China and Eaſt Tartary. The little Guinea Deer, as it is called, ſeems alſo confined to the provinces of Africa and the Eaſt Indies. The Rabbit, which comes originally from Spain, and has been diffuſed over all the temperate climates of Europe, did not exiſt in America; for the animals of that continent which are ſo called, are of a different ſpecies, and all the real ones were tranſported thither from Europe. The Ferret, brought from Africa to Europe, was unknown in America; as were alſo our rats and mice, which having been carried there in European ſhips, have ſince multiplied prodigiouſly.

The following, then, are nearly all the animals of the old continent, namely, the elephant, rhinoceros, hippopotamus, camel, dromedary, giraſſe, lion, tiger, panther, horſe, aſs, zebra, ox, buffalo, ſheep, goat, hog, dog, hyæna, jackall, genet, civet, cat, gazelle, chamois goat, wild goat, Guinea deer, rabbit, ferret, rat, mouſe, loir, lerot, marmot, ichneumon, badger, ſable, ermine, jerboa, the maki, and ſeveral ſpecies of monkies, none of which were found in America on the firſt arrival of the Europeans.

## ANIMALS OF THE NEW WORLD.

THE animals of the New World were not more known to the Europeans, than were our animals to the Americans. The Peruvians and Mexicans were the only people on the new continent which were half civilized. The latter had no domeſtic animals; and thoſe of the former conſiſted of the lama, the pacos, and the alco, a ſmall animal reſembling a little dog. The pacos and the lama, like the chamois goat, live only on the higheſt mountains, and are found on thoſe of Peru, Chili, and New Spain. Though they had become domeſtic among the Peruvians, and conſequently ſpread over the neighbouring countries, their multiplication was not abundant, and has even decreaſed in their native places, ſince the introduction of European cattle, which have ſucceeded aſtoniſhingly in all the ſouthern countries of the American continent.

It appears ſingular, that in a world, occupied almoſt entirely by ſavages, whoſe manners ſomewhat reſembled thoſe of the brutes, there ſhould be no connection, no ſociety exiſting between them and the animals by which they were ſurrounded; and this was abſolutely the caſe, for there were no domeſtic animals, excepting where the people were in ſome degree civilized. Does not this prove that man, in a ſavage ſtate, is nothing more than a ſpecies of animal, incapable of ruling others; and poſſeſſing only individual faculties, employs them for procuring his ſubſiſtence, and providing for his ſecurity, by attacking the weak, and avoiding the ſtrong, but without entertaining any idea of real power, or endeavouring to reduce them to ſubjection? Every nation, even thoſe which are but juſt emerging from barbariſm, has its domeſtic animals. With us the horſe, the aſs, the ox, the ſheep, the goat, the hog, the dog, and the cat; in Italy the buffalo; in Lapland the rein-deer; in Peru the lama, the pacos, and the alco; in the eaſtern countries, the dromedary, the camel, and various ſpecies of oxen, ſheep, and goats; in the ſouthern ones the elephant; all theſe animals have been reduced to ſervitude, or admitted into ſociety; while the ſavage, hardly deſirous of the ſociety of his female, either fears or diſdains that of other animals. Of theſe ſpecies, rendered domeſtic, it is true, not one exiſted in America; but if the ſavages, with whom it was peopled, had anciently united, and had communicated to each other the mutual aids of ſociety, they would have rendered ſubſervient the greateſt part of the animals of that country, moſt of them being mild, docile, and timid, few miſchievous, and not any formidable. Their liberty has, therefore, been preſerved ſolely from the weakneſs of man, who has little or no power without the aid of ſociety, upon which even the multiplication of his ſpecies depends. The immenſe territories of the new world were but thinly inhabited; and, on its firſt diſcovery, contained not more than one half of the human ſpecies that may now be reckoned in Europe. This ſcarcity of men allowed every other animal to multiply in abundance; every thing was favourable to their increaſe, and the number of individuals of each ſpecies was immenſe; but the number of ſpecies were comparatively few, and did not amount to more than a fourth, or a third, of thoſe of the old continent. If we reckon 200 ſpecies of animals in the known world we ſhall find that more than 130 of them belong to the old continent, and leſs than 70 to the new; and if we except the ſpecies common to both continents, that is, ſuch as by their natures are capable of enduring the rigours of the north, and might have paſſed from one to the other, there will not remain above 40 ſpecies peculiar to, and natives of, America. Animated nature, therefore, is leſs active, leſs varied, and even leſs vigorous, for by the enumeration of the American animals we ſhall perceive, that not only the number of ſpecies is ſmaller, but that in general they are inferior in ſize to thoſe of the old continent; not one animal throughout America can be compared to the elephant, rhinoceros, lion, &c. The Tapir of Braſil is the largeſt of all the South American animals, and this elephant of the new world exceeds not the ſize of a very ſmall mule, or a calf at ſix months old; with both which animals he has been compared, although he does not reſemble either. The Lama is not ſo big as the tapir, and appears large only from the length of his neck and legs; and the Pacos is much ſmaller ſtill. The Cabiati, which, next to the tapir, is the largeſt of the South American animals, is not bigger than a common-ſized hog; he differs as much as any of the preceding from all the animals of the old continent; for although he has been called the water hog, he has eſſentially different characteriſtics from that animal. The Tajacou is ſmaller than the cabiai, and has alſo a ſtrong external reſemblance to the hog, but differs greatly in his internal conformation. Neither the tajacou, cabiai, nor the tapir, are to be found in any part of the old continent; and the ſame may be ſaid of the *Tamandua-cuacu*, or *Ouariri*, and of the *Ouatiriou*, which we have called Ant-eaters. Theſe animals, the largeſt of which is below mediocrity, ſeem confined to the regions of South America. They are remarkable in having no teeth, their tongue is long and cylindrical, and their mouth is ſo ſmall that they can neither bite nor hardly take hold of any thing; they can only procure ſubſiſtence by putting out their long tongue in the way of the ants, and drawing it in when loaded with them. The Sloth, which is called *ai*, or *hai*, by the natives of Braſil, on account of the plaintive cry of *ai*, which it continually ſends forth, ſeems likewiſe to be confined to the new continent. It is ſmaller than either of the preceding ones, being not more than two feet long, and is ſcarcely ſo quick in his motion as the turtle; it has but three claws on each foot, its fore legs are longer than its hind ones, it has a very ſhort tail, and no ears. Beſides, the ſloth and armadillo are the only quadrupeds which have neither inciſive nor canine teeth, but whoſe grinders are cylindrical, and round at the extremities, nearly like thoſe of ſome ceſtaceous animals.

The Cariacou of Guiana is an animal of the nature and ſize of our largeſt roe-bucks; the male has horns, which he ſheds every year, but the female has none. At Cayenne it is called the Hind of the Woods. There is another ſpecies, called the little cariacou, or hind of the fens, which is conſiderably ſmaller than the former, and the male has no horns. From the reſemblance of the names I ſuſpected that the cariacou of Cayenne might be the caguacu, or cougouacu-apara, of Braſil, and comparing the accounts given by Piſo and Marcgrave of the latter with the cariacou I had alive, I was perſuaded they were the ſame animal, yet ſo different from our roe-buck as to juſtify our conſidering them diſtinct ſpecies.

The tapir, cabiai, tajacou, ant-eater, ſloth, cariacou, lama, pacos, biſon, puma, jaguar, couguar, juguarat, and the mountain-cat, are the largeſt animals of the new continent. The middle-ſized and ſmall ones are the cuandus, or gouandous, agonti, coati, paca, opoſſum, cavies, and armadillos; all which I believe are peculiar to the new world, although our lateſt nomenclators ſpeak of two other ſpecies of armadillos, one in the Eaſt Indies, and the other in Africa ; we have only the teſtimony of the author of the deſcription of Seba's cabinet for their exiſtence, and that authority is inſufficient to confirm the fact ; as miſnomers frequently happen in the collections of natural objects. An animal, for example, is purchaſed under the name of a Ternat, or American bat, and another under that of the Eaſt India Armadillo, they are then announced by thoſe names in a deſcriptive catalogue, and are adopted by our nomenclators ; but when examined more cloſely the American bat proves to be one of our own country, and ſo may the Indian or African armadillo be merely an armadillo of America.

Hitherto we have not ſpoken of Apes, their hiſtory requiring a particular diſcuſſion. As the word *Ape* is a generic term applied to a number of ſpecies, it is not ſurpriſing that it ſhould be ſaid they abound in the ſouthern parts of both continents ; but it is for us here to enquire whether the apes of Aſia or Africa are the ſame animals as thoſe ſo called in America, and whether from among more than thirty ſpecies of apes, which I have examined alive, one of them is alike common to both continents.

The Satyr, Oran-outang, or Man of the Woods, as it is indifferently termed, ſeems to differ leſs from man than from the ape, is only to be found in Africa or the ſouth of Aſia. The Gibbon, whoſe fore-legs, or arms, are as long as the whole body, even the hind-legs included, is a native of the Eaſt Indies alone. Neither of theſe have tails. The ape, properly ſo termed, whoſe hair is greeniſh, with a ſmall intermixture of yellow, has no tail, belongs to Africa, and a few other parts of the old continent. It is the ſame alſo with the Cynocephali-apes, of which there are two or three ſpecies; neither of them having any tails, at leaſt they are ſo ſhort as ſcarcely to be perceivable. All apes which are without tails, and whoſe muzzles, from being ſhort, bear a ſtrong reſemblance to the face of man, are real apes; and the ſpecies above-mentioned are all natives of the old continent, and unknown in the new; from whence we may pronounce that there are no real apes in America.

The Baboon, an animal larger than the dog, and whoſe body is purſed up like that of the hyæna, is exceedingly different from thoſe we have noticed, and has a ſhort tail: it is equally endowed with inclination and powers for miſchief, and is only to be met with in the deſarts of the ſouthern parts of the old continent.

Beſides theſe without tails, or with very ſhort ones, (which all belong to the old continent) almoſt all the large ones with long tails, are peculiar to Africa. There are few even of the middling ſize in America, but thoſe called Little long-tailed Monkies are very numerous, of which there are ſeveral ſpecies; and when we give the particular hiſtory of theſe animals, it will appear the American monkies differ very much from the apes of Aſia and Africa. The Maki, of which there are three or four ſpecies, has a near reſemblance to the monkies with long tails, but is another animal, and peculiar alſo to the old continent. All the animals, therefore, of Aſia and Africa, which are known by the name of apes, are equally ſtrangers in America as the rhinoceros or tiger; and the more we inveſtigate into this ſubject, the more we ſhall be convinced that the animals of the ſouthern parts of one continent did not exiſt in the other, and the few found in them muſt have been carried thither by men. Between the coaſts of Braſil and Guinea, there are 500 leagues of ſea; and between thoſe of the Eaſt Indies and Peru, the diſtance exceeds 2000 leagues: It appears, therefore, that all thoſe animals which from their nature are incapable of ſupporting cold climates, or, if ſupporting, cannot propagate therein, are confined on two or three ſides by ſeas they cannot croſs, and on the other by lands ſo cold they cannot live in them. At this one general fact, then, however ſingular at firſt it may appear, our wonder ought to ceaſe, namely, that not one of the animals of the Torrid Zone of one continent, are natives of the Torrid Zone of the other.

## [ANIMALS COMMON TO BOTH CONTINENTS.

BY the preceding enumeration it appears, that not only the quadrupeds of the hot climates of Aſia and Africa, but many of thoſe in the temperate climates of Europe, are ſtrangers in America; but we find many there of ſuch as can ſupport cold and propagate their ſpecies in the regions of the north; and though there is an evident difference in them they cannot but be conſidered as the ſame animals; and this induces us to believe, they formerly paſſed from one continent to the other by lands ſtill unknown, or poſſibly long ſince buried by the waves. Of the contiguity of the two northern provinces, the proof thus drawn from Natural Hiſtory is a ſtronger confirmation than all the conjectures of ſpeculative Geography.

The Bears of the Illionois, of Louiſiana, &c. ſeem to be the ſame with ours; the former being only ſmaller and blacker. The ſtag of Canada, though ſmaller than ours, differs only in the ſuperior loftineſs of his horns, number of antlers, and length of his tail. The roebuck, found in the ſouth of Canada, and in Louiſiana, is alſo ſmaller and has a longer tail than that of Europe. The Original is the ſame animal as the Elk, but not ſo large. The reindeer of Lapland, the fallow-deer of Greenland, and the Caribou of Canada, appear to be one and the ſame animal. Briſſon has indeed claſſed the latter with the *cervus Burgundicus* of Johnſton, but which animal remains unknown, and poſſibly received that name from accident or caprice.

The hares, ſquirrels, hedge-hogs, otters, marmots, rats, ſhrew-mice, and the moles, are ſpecies which may be conſidered as common to both continents; though there is not one perfectly ſimilar in America to what it is in Europe; and it is very difficult, if not impoſſible, to pronounce whether they are in reality different ſpecies, or mere varieties rendered permanent by the influence of the climate.

The Beavers of Europe ſeem to be the ſame as thoſe of Canada. Theſe animals prefer cold countries, but can ſubſiſt and propagate in temperate ones. In the iſlands of the Rhone in France, there ſtill remains a few of the number which formerly ſubſiſted there; and they ſeem more deſirous of avoiding a too populous country than one that is warm. They never form their ſocieties but in deſarts remote from the dwellings of men; and even in Canada, which can be conſidered as little more than a vaſt deſart, they have retired far from any human habitation. The Wolf and Fox are common to both continents. They are met with in all parts of North America, and of both ſpecies there are ſome entirely black. Though the Weaſel and Ermine frequent the cold countries of Europe, they are very rare in America, which is not the caſe with the pine-weaſel, martin, and polecat. The Pine-weaſel of North-America ſeems to be the ſame with that of the northern parts of Europe. The Viſon of Canada has a ſtrong reſemblance to our Martin; and the ſtreaked Polecat of North America, is perhaps a mere variety of the European kind. The Lynx of America is, to all appearance, the ſame with that in Europe. Though it prefers cold countries, it lives and multiplies in temperate ones, and is ſeldom ſeen but in foreſts and on mountains. The Seal, or ſea-calf, ſeems to be confined to the northern regions, and is alike to be found on the coaſts of Europe or North America.

Such, with a few exceptions, are all the animals common to the old and new world; and from this number, inconſiderable as it is, we ought, perhaps, to deduct one third, whoſe ſpecies, though ſimilar in appearance, may be different in reality. But admitting the identity of the ſpecies, thoſe common to both continents are very ſmall in number, compared with thoſe peculiar to each; and it is alſo evident, that ſuch only as can bear cold, and cannot multiply in warm countries, are to be found in both. From which there cannot remain a doubt but that the two continents are, or have been, contiguous towards the north, and that the animals common to both found a paſſage over lands which at preſent are to us unknown. There is reaſon to believe, from the diſcoveries made by the Ruſſians to the north of Kamtſchatka, that the lands of Aſia and America are contiguous, while the north of Europe appears always to have been ſeparated from the latter by ſeas too conſiderable for any quadruped to have croſſed; nevertheleſs, the animals of North America have a ſtronger reſemblance to thoſe of the northern parts of Europe than to thoſe of the north of Aſia. Neither the Argali, Sable, Mole of Siberia, nor Chineſe Muſk, are to be found at Hudſon's Bay, or any other north-weſt part of the new continent; while in the north-eaſt parts we not only find the animals common to the north of Europe and Aſia, but even ſuch as appear to be peculiar to Europe. But it muſt be acknowledged, that the north-eaſt part of Aſia are ſo little known that we cannot attempt to affirm, with certainty, whether the animals of the north of Europe are to be found there or not.

We have already remarked, as a ſtriking ſingularity, that the animals in the ſouthern provinces of the new continent are ſmall, in compariſon with thoſe of the warm regions of the old; the elephant, &c. of the former being ſome of them eight and ten times larger than the tapir, &c. of the latter. And this general fact, as to ſize, is farther corroborated, by all the animals which have been tranſported from Europe having become leſs, and alſo thoſe common to both continents being much ſmaller in America than thoſe of Europe. In this new world, then, there muſt be ſomething in the combination of the elements, and other phyſical cauſes, which oppoſes the aggrandiſement of animated nature; there muſt be obſtacles to the developement, and perhaps to the formation of the principles of life. Under this ſky, and on this vacant land, even thoſe which, from the benign influence of other climates, had received their full form and complete extenſion, loſe both, and become ſhrivelled and diminiſhed. Theſe extenſive regions were thinly inhabited by a few wandering ſavages, who, inſtead of acting as maſters, had no authority in it; for they had no controul over either animals or elements; they had neither ſubjected the waves nor directed the motions of rivers, nor even cultivated the earth around them; they were themſelves nothing more than animals of the firſt rank, mere automatons, incapable of correcting Nature, or ſeconding her intentions. Nature, indeed, had treated them more as a ſtepmother than an indulgent parent, by denying them the ſentiment of love, and the eager deſire to propagate their ſpecies. The American ſavage, it is true, is little leſs in ſtature than other men, yet that is not ſufficient to form an exception to the general remark—that all animated nature is comparatively diminutive in the new continent. In the ſavage the organs of generation are ſmall and feeble; he has no hair, no beard, no ardour for the female; though more nimble than the European, from being habituated to running, he is not ſo ſtrong; poſſeſſed of leſs ſenſibility, yet he is more timid and daſtardly; he has no vivacity, no activity of ſoul, and that of the body is leſs a voluntary exerciſe than a neceſſary action occaſioned by want. Satisfy his hunger and thirſt and you annihilate the active principle of all his motions; and he will remain for days together in a ſtate of ſtupid inaction *. Needleſs is it to ſearch farther into the cauſe for the diſperſed life of ſavages, and

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* M. Vaillant ſays, that the Hottentots will ſleep for two or three days together, either from hunger or exceſs in eating; for, when hungry, indolence has ſuggeſted to them the expedient of ſleeping inſtead of the labour of ſeeking for food, and that by tying a bandage round their bellies they can do ſo for the above ſpace, without experiencing any inconvenience therefrom.

and their averſion to ſociety. Nature has withheld from them the moſt precious ſpark of her torch; they have no ardour for the female, and conſequently no love for their fellow-creatures. Strangers to an attachment the moſt lively and tender, their other ſenſations of this nature are cold and languid: to their parents and children they are little more than indifferent; with them feeble are the bands of the moſt intimate of all ſociety, that of one family; nor is there the ſmalleſt connection between one family and another; of courſe they have no ſocial ſtate among them; cold in temperament, their manners are cruel, their women they treat as drudges born to labour, or rather as beaſts of burthen, whom they load with all the produce of the chace, and whom they oblige, without pity or gratitude, to perform offices repugnant to their natures, and frequently beyond their ſtrength. They have few children, and to thoſe they pay little attention. The whole ariſes from one cauſe; they are indifferent becauſe they are weak, and this indifference to the female is the original ſtain which defaces nature, prevents her from expanding, and while it deſtroys the ſeeds of life, ſtrikes at the root of ſociety. Man, therefore, forms no conception; for Nature, by retrenching the faculty of love, has diminiſhed him more than any other animal. Before we examine the cauſes of this general effect, it muſt be acknowledged, that although Nature has reduced all the quadrupeds of the new world, yet ſhe has preſerved the ſize of reptiles, and enlarged that of inſects; for although there are larger lizards and larger ſerpents at Senegal than in South-America, yet in theſe animals the difference is not near ſo great as in the quadrupeds; the largeſt ſerpent at Senegal is not twice as large as the great adder of Cayenne, whereas the elephant is ten times as big as the tapir, which is the largeſt animal of South America. In no part are the inſect-tribes ſo large as in South America. At Cayenne, the ſpiders, caterpillars, and butterflies, ſurpaſs all the inſects of the old continent, not only as to ſize, but in richneſs of colours, delicacy of ſhades, variety of forms, number of ſpecies; and the prodigious multiplication of individuals. The toads, frogs, and other creatures of this kind, are alſo very large in America. Of the birds and fiſh we ſhall ſay nothing; ſince they poſſeſs the power of migrating from one continent to the other, it would be almoſt impoſſible to diſtinguiſh which properly belong to either, but inſects and reptiles, like quadrupeds, are confined nearly to the ſpot in which they came into exiſtence.

Let us then now enquire why, in this new world, the reptiles and inſects are ſo large, quadrupeds ſo ſmall, and the men ſo cold. Theſe effects muſt depend on the quality of the earth and atmoſphere, on the degrees of heat and moiſture, on the ſituation and height of mountains, on the quality of running and ſtagnate waters, on the extent of foreſts, and, in a word, on the ſtate in which inanimate nature preſents itſelf in that country. In the new world there is much leſs heat and more moiſture than in the old. If we compare the heat and cold, in each degree of latitude, we ſhall find a very great difference; that at Quebec, which is under the ſame degree of latitude as Paris, the rivers are covered with ice for months in the year, and the grounds with ſnow ſeveral feet thick, that the air is ſo cold the birds fly off at the approach of winter, and return not till invited by the warmth of ſpring. This difference of heat under the ſame latitude in the Temperate Zone, though conſiderable, is perhaps leſs ſo than the difference of that under the Torrid Zone. At Senegal, we are ſcorched, while at Peru, ſituate under the ſame line, we enjoy the benign influence of a temperate climate.

mate. In ſuch a ſituation is the continent of America placed, and ſo formed, that every thing concurs to diminiſh the action of the heat. There we find the higheſt mountains and greateſt rivers in the known world; theſe mountains form a chain which ſeems to terminate the length of the continent towards the weſt, while the plains and low grounds are all ſituated on this ſide of the mountains, from whoſe baſe they extend to the ſea, which ſeparates the American from the European continents. Thus the eaſt wind, which conſtantly blows between the tropics, does not reach America until it has traverſed a vaſt extent of ocean, and thus been greatly cooled; and for this reaſon it is much leſs warm at Braſil and Cayenne, for example, than at Senegal and Guinea, where this eaſt wind arrives, charged with the heat of all the burning ſands and deſarts which it neceſſarily paſſes in traverſing both Aſia and Africa.

In treating of the different colours of men, particularly negroes, it appeared to be demonſtrated that the ſtrong tincture of brown or black depended entirely on the ſituation of the country, that the negroes of Nigritia, and thoſe of the weſt coaſt of Africa are the blackeſt, becauſe thoſe countries are ſo ſituated as to contain more heat than any other part of the globe, from the eaſt wind not reaching them until it had paſſed immenſe tracks of land; that the American Indians, under the line, are only tawny, and the Braſilians brown, though under the ſame latitude as the Negroes, becauſe the heat of the climate is not ſo great, and the eaſt wind has been cooled with the water, and loaded with humid vapours. The clouds which intercept the ſun, and the rains which refreſh the earth, are periodic, and continue ſeveral months at Cayenne, and other countries of South America. The firſt cauſe renders all the eaſt coaſts of America more temperate than either Aſia or Africa; this wind arriving in a cool ſtate begins to aſſume a degree of heat in traverſing the plains of America, but which is checked by the enormous chain of mountains of which the weſtern part of the new continent is compoſed, ſo that it is leſs hot under the line at Peru and Cayenne, and the natives are of a leſs dark complexion. If the Cordeliers were reduced to a level with the adjacent plains, the heat would be exceſſive in the weſtern territories, and there would ſoon be men as black at Chili and Peru, as on the weſtern coaſts of Africa. From the ſituation alone, then, it is evident the degree of heat is much leſs in the new than in the old continent, and we ſhall now make it appear, that there is a much greater degree of moiſture in America. The mountains being the moſt lofty of any upon the globe, and directly facing the eaſt wind, they ſtop and condenſe the vapours of the air, and thus give riſe to a number of ſprings, which, by their junction, form the greateſt rivers in the world. In proportion, therefore, to its extent there are more running waters in the new continent than in the old, and which are augmented by their confined ſituations; for the natives having never checked the torrents, directed the rivers, nor drained the marſhes, immenſe tracks of land are covered by the ſtagnant waters, by which the moiſture of the air is encreaſed and the heat diminiſhed. Beſides, the earth being every where covered with trees and coarſe weeds, it never dries, but conſtantly produces humid and unwholeſome exhalations. In theſe gloomy regions, Nature remains concealed under her old garments, never having received a new attire from the cultivation of man, but totally neglected, her productions languiſh, become corrupted, and are prematurely deſtroyed. Chiefly, then, is it from the ſcarcity of men in America, and moſt of them living like the brutes, contain more heat than any other part of the globe, from the eaſt wind not reaching them until it had paſſed immenſe tracks of land; that the American Indians, under the line, are only tawny, and the Braſilians brown, though under the ſame latitude as the Negroes, becauſe the heat of the climate is not ſo great, and the eaſt wind has been cooled with the water, and loaded with humid vapours. The clouds which intercept the ſun, and the rains which refreſh the earth, are periodic, and continue ſeveral months at Cayenne, and other countries of South America. 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In theſe gloomy regions, Nature remains concealed under her old garments, never having received a new attire from the cultivation of man, but totally neglected, her productions languiſh, become corrupted, and are prematurely deſtroyed. Chiefly, then, is it from the ſcarcity of men in America, and moſt of them living like the brutes, that the earth has been neglected, remains cold, and is unable to produce the active principles of Nature. To develope the ſeeds of the largeſt animals and enable them to grow and multiply, requires all the heat which the ſun can communicate to a fertile ſoil; and for a reaſon directly oppoſite it is, that inſects, reptiles, and all the little animals which wallow in the mud, whoſe blood is watery, and whoſe increaſe depends on putrefaction, are more numerous and larger in the low, humid, and marſhy lands of the new continent.

When we reflect on theſe very ſtriking differences between the old and new continents, we can hardly help ſuppoſing that the latter is, in fact, more recent, and has remained buried under the ocean longer than the reſt of the globe, for, the enormous weſtern mountains excepted, which ſeem to be monuments of the moſt remote antiquity, it has all the appearance of being a land newly ſprung up. We find ſea-ſhells in many places under the very firſt ſtratum of the vegetable earth, formed into maſſes of lime-ſtone, though uſually leſs hard and compact than our free-ſtone. If this continent is in reality as ancient as the other, why did ſo few men exiſt on it? why were the moſt of that few wandering ſavages? why did the

Mexicans and Peruvians, who alone had entered into ſociety, reckon only 200 or 300 years from the firſt man who taught them to aſſemble? why had they not reduced the lama, pacos, and other animals, by which they were ſurrounded, into a domeſtic ſtate? As their ſociety was in its infancy, ſo were their arts; their talents were imperfect, their ideas unexpanded, their organs rude, and their language barbarous. The names of their animals*, of which we have ſubjoined a few as a ſpecimen, were ſo difficult to pronounce, that our only aſtoniſhment is, how the Europeans ſhould have taken the trouble of writing them.

Thus every circumſtance ſeems to indicate, that the Americans were new men, or rather men who had been ſo long eſtranged from the reſt of their ſpecies; that they had loſt all idea of the world from which they had iſſued; that the greateſt part of the American continent was new land, unaſſiſted by man, and in which Nature had not had time to eſtabliſh all her plans, to diſplay her full extent; that the men are cold and the animals diminutive, becauſe the ardour of the former, and the largeneſs of the latter, depend on the heat and ſalubrity of the air; and that, in the courſe of a few centuries, when the lands are cultivated, the foreſts cut down, the rivers confined within proper channels, and the marſhes drained, this very country will become the moſt fruitful, healthy, and opulent in the world; as it appears already in every part which has been cultivated by man. We mean not to infer that large animals would then be produced, for the tapir and cabiai will never attain the ſize of the elephant or hippopotamus, but thoſe which may be tranſported there will no longer diminiſh. By degrees man will fill up the vacuums in theſe immenſe territories, which, when diſcovered, were perfect deſarts.

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* *Pelon ichiatl oquitli*—the lama.
*Tapiierete*, in Braſil; *manipouris*, in Guinea—the tapir.
*Macatlchichiltic temamacama*—the antelope of New Spain.
*Quauhtla coymatl*—the Mexican hog.
*Tlacoozclotl*—the mountain cat.
*Tlatlauhqui occlotl*, in Mexico—the jaguar.
*Hoitzlaquatzin*—the porcupine of New Spain.
*Xoloitzcointli*—the Mexican wolf.

The firſt writers who recorded the conqueſts of the Spaniards, to heighten the glory of their arms exaggerated the number of their enemies; but is it poſſible for any reaſonable man to credit there were millions of inhabitants at Cuba and St. Domingo, when thoſe writers admit there was neither a monarchy, a republic, nor ſcarcely any ſociety among them; and it being known, that in theſe two neighbouring iſlands, ſituated at but a little diſtance from the continent, there were only five ſpecies of animals, the largeſt of which was not bigger than a rabbit? Than this fact, as affirmed by Laet, Acoſta, and Father du Tertre, in their different hiſtories, no ſtronger proof can be adduced of the vacuity and deſart ſtate of this new-diſcovered world.

M. Fabry, who travelled for fifteen months over the weſtern parts of America, beyond the Miſſiſſippi, aſſured me that he ſometimes did not meet a ſingle man for the ſpace of 300 or 400 leagues; and all our officers who went from Quebec to the Ohio, and from that river to Louiſiana, agree that it is not uncommon to travel more than 100 leagues without ſeeing a ſingle family of ſavages. From theſe teſtimonies it is plain, that the moſt agreeable countries of this new continent were little better than deſarts; but what is more immediately neceſſary to our purpoſe, they ſhew we ſhould diſtruſt the evidence of our nomenclators, who ſet down in their catalogues animals as belonging to the new world which ſolely belong to the old, and others as natives of particular diſtricts where they never exiſted; and in the ſame manner they have claſſed ſome animals as natives of the old world which belong excluſively to America.

I do not pretend to affirm poſitively that none of the animals which inhabit the warm climates are not common to both. To be phyſically certain of this it is neceſſary they ſhould have been ſeen; but it is evident, with reſpect to the large animals of America, that none of them are to be found in the old continent, and very few of the ſmall ones. Beſides, allowing there to be ſome exceptions, they muſt relate to a trifling number of ſpecies, and in no degree affect the general rule which I intend to eſtabliſh, and which ſeems to me our only certain guide to the knowledge of animals. This rule, which leads us to judge of them as much by climate and diſpoſition as from figure and conformation, will ſeldom be found wrong, and enable us to avoid and diſcover a multitude of errors. If, for example, we mean to deſcribe the hyæna of Arabia, we may ſafely affirm that it does not exiſt in Lapland; but we will not ſay with Briſſon, and ſome others, that the hyæna and the glutton are the ſame animal; nor with Kolbe, that the croſs-fox, which inhabits the northern parts of the new continent, is found at the Cape of Good Hope, as the animal he mentions is not a fox, but a jackall. But it is not my object at preſent to point out all the errors of nomenclators;

clators; my intention is ſolely to prove that their blunders would have been leſs had they paid ſome attention to the difference of climates; if the hiſtory of animals had been ſo far ſtudied as to diſcover, which I have done, that thoſe of the ſouthern parts of each continent are never found in both; and laſtly, if they had abſtained from generic names, which have confounded together a number of ſpecies, not only different, but even remote from each other.

The true buſineſs of a nomenclator is not to enlarge his liſt, but to form rational compariſons in order to contract it. Nothing can be more eaſy than, by peruſing all the authors on animals, to form a table, by ſelecting their names and phraſes, and which will always be long in proportion as the enquiry is ſuperficial; while nothing can be more difficult than to compare them with that judgment and diſcernment neceſſary to reduce that table to its proper dimenſions. I ſaid before, and now repeat, than in the whole known part of the globe there are not above 200 ſpecies of quadrupeds, including among them 40 ſpecies of apes. To each of theſe, therefore, we had only to appropriate a name, and to retain 200 names a moderate exertion of memory is required; for what purpoſe then are quadrupeds formed into claſſes and genera, which are nothing more than props to ſerve the memory in the recollection of plants, which are ſo very numerous, and often ſo very ſimilar. But inſtead of a liſt of 200 quadrupeds we have volumes heaped upon volumes full of intricate names and phraſes. Why introduce an unintelligible jargon, when we may be underſtood by pronouncing a ſimple name? Why change terms merely to form claſſes? When a dozen animals are formed into them, under the name, for inſtance, of *the Rabbit*, why is the Rabbit itſelf omitted, and muſt be ſought for under the genus of *the Hare?* Is it not abſurd and ridiculous to form claſſes in which the moſt remote genera are aſſembled together; to put in the firſt, for example, man and the bat; the elephant and ſcaly lizard in the ſecond; the lion and ferret in the third; the hog and the mole in the fourth; and the rhinoceros and the rat in the fifth? Ideas ſo vague and ill-conceived can never maintain their ground. Theſe works are deſtroyed by their own authors, one edition contradicting another, and neither approved but by children, and ſuch as are always the dupes of myſtery, miſtaking the appearance of method for the reality of ſcience. By comparing the fourth edition of Linnæus's Syſtema Naturæ with the tenth, we find man is no longer claſſed with the bat, but with the ſcaly lizard; that the elephant, hog, and rhinoceros, inſtead of being claſſed as before with the ſcaly lizard, mole, and rat, are all three huddled together with the ſhrew-mouſe. In the former he had reduced all quadrupeds to five claſſes, but in the latter he divides them into ſeven. From theſe alterations we may form ſome idea of thoſe introduced among the genera, and how the ſpecies have been jumbled and confounded. According to the ſame author there are two ſpecies of men, the man of day and the man of night, and that theſe are ſo very diſtinct that they ought not to be regarded as varieties of the ſame ſpecies. Is not this adding fable to abſurdity? and were it not better to remain ſilent with reſpect to matters of which we are ignorant, than to found eſſential characters, and general diſtinctions upon the groſſeſt error? But to whatever length criticiſms of this kind might be extended, I ſhall proceed no farther, eſpecially as it does not form my principal object, having already ſaid enough to put every reader on his guard, againſt the genera as well as particular errors which abound ſo much in the works of nomenclators.

In drawing general concluſions, from what has been advanced, we ſhall find, that man is the only animated being in whoſe nature there is ſufficient ſtrength, genius, and flexibility, to ſubſiſt and multiply in all the different climates of the earth. It is evident that no other animal poſſeſſes this grand privilege, for, far from being able to multiply in every part of the globe, moſt of them are confined to certain climates, and even particular diſtricts. In every reſpect man is the work of heaven, while many animals are the mere creatures of the earth. Thoſe of one continent exiſt not on another, and if there are a few exceptions, they are ſo changed and diminiſhed as hardly to be known. Can a ſtronger proof be given that the impreſſion of their form is not unalterable? that their nature, leſs permanent than that of man, may in time be varied, and even abſolutely changed? that from the ſame cauſe thoſe ſpecies which are leaſt perfect, leaſt active, and furniſhed with the feweſt engines of defence, as well as the moſt delicate and the moſt cumbrous, have already, or will diſappear, for their very exiſtence depends on the form which man gives to the ſurface of the earth, or permits it to retain.

The prodigious Mammouth, whoſe enormous bones I have often viewed with aſtoniſhment, and which were at leaſt ſix times bigger than thoſe of the largeſt elephant, exiſts no longer; although its remains have been found in Ireland, Siberia, Louiſiana, and other places remote from each other. Of all ſpecies of quadrupeds this was certainly the largeſt and ſtrongeſt, and ſince it has diſappeared, how many ſmaller, weaker, and leſs remarkable, muſt have periſhed, without having left any evidence of their paſt exiſtence? How many others have been improved or degraded by the great viciſſitudes of the earth and waters, by the culture or neglect of Nature, by their long continuance in favourable or repugnant climates, that they are no longer the ſame? and yet, next to man, quadrupeds are beings whoſe nature is moſt fixed and form moſt permanent. Birds and fiſhes vary more; thoſe of inſects are ſubject to greater variations ſtill; and if we deſcend to plants, which ought not to be excluded from animated Nature, we ſhall be aſtoniſhed at the celerity and facility with which they vary and aſſume new forms.

It may not be impoſſible, then, without inverting the order of Nature, that all the animals of the new world originated from the ſame ſtock as thoſe of the old; that having been afterwards ſeparated by immenſe ſeas or impaſſable lands, they, in courſe of time, underwent all the effects of a climate which was new to them, and which muſt alſo have had its qualities changed by the very cauſes which produced its ſeparation; and that they, in conſequence, became not only inferior in ſize, but different in nature. But theſe circumſtances, if true, ought not to prevent us from conſidering them now as animals of different ſpecies. From whatever cauſes theſe changes may have proceeded, whether produced by time, climate or ſoil, or whether originating with the creation, they are not the leſs real. Nature is, indeed, in a perpetual fluctuation. Sufficient is it for man to watch her in his own time, to look a little backward and forward, by way of forming a conjecture of what ſhe might have been formerly and what ſhe may hereafter aſſume.

As to the utility to be derived from this compariſon of animals, it is evident, that independent of correcting the errors of our nomenclators, our knowledge of the animal creation will be enlarged, rendered leſs imperfect and more certain; that we ſhall be in leſs hazard of attributing to American animals, properties which belong to thoſe of the Eaſt Indies,

*Engraved for Barr's Buffon .*

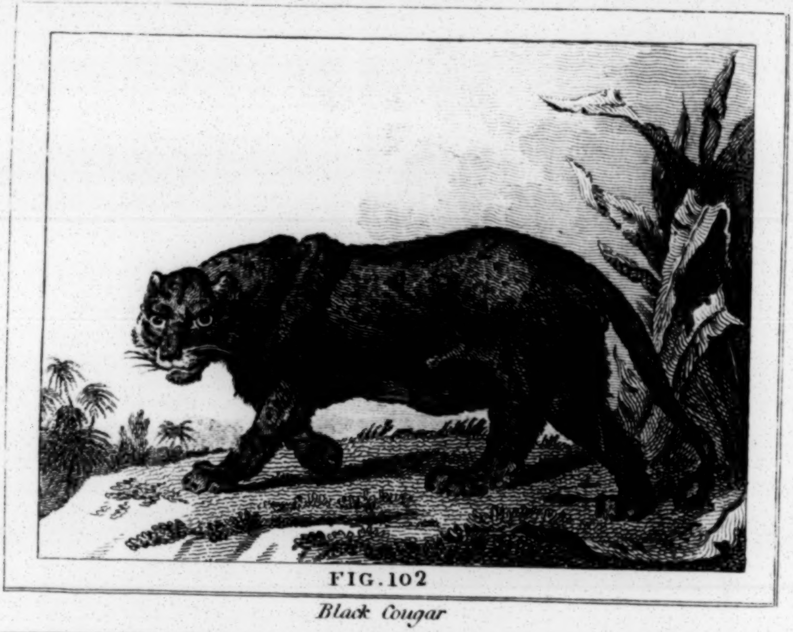

FIG. 102

*Black Cougar*

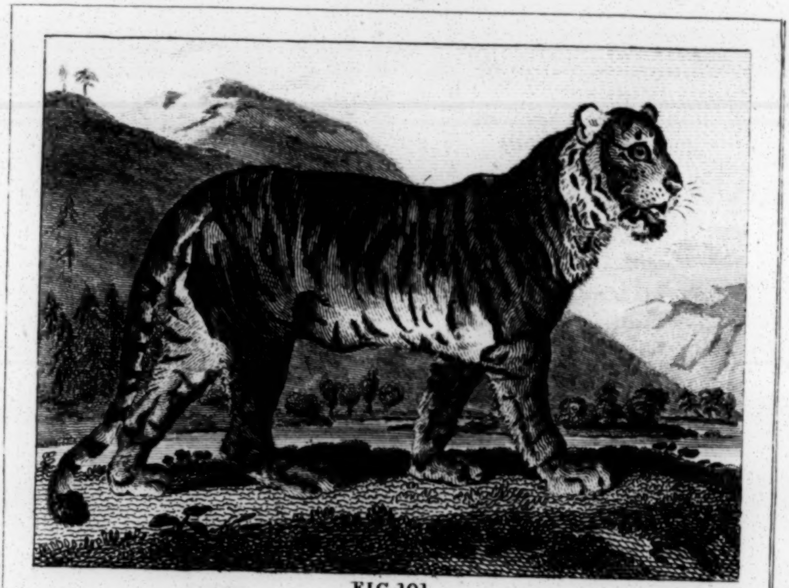

FIG. 101

*Tiger*

Indies, becauſe they may have the ſame name; that in treating of foreign animals, from accounts given by travellers, we ſhall be more able to diſtinguiſh names and facts, and to refer them to their true ſpecies; and, in fine, the hiſtory in which we are now engaged will be leſs numerous, leſs obſcure, and perhaps more complete.

## THE TIGER.

IN the claſs of carnivorous animals the lion ſtands foremoſt, and he is immediately followed by the tiger, who, poſſeſſing all the bad qualities of the former, is a ſtranger to his good ones. To pride, courage, and ſtrength, the lion adds dignity, clemency, and generoſity, while the tiger is ferocious without provocation and cruel without neceſſity. Thus it is throughout all nature where rank proceeds from the ſuperiority of ſtrength. The firſt claſs, ſole maſter of all, are leſs tyrannical than their immediate inferiors, who, denied unlimited authority, abuſe thoſe powers which they poſſeſs; thus the tiger is more to be dreaded than the lion. The latter often forgets that he is the ſovereign, or ſtrongeſt of animals; with an even pace he traverſes the plains and foreſts; man he attacks not unleſs provoked, nor animals but when preſſed with hunger. The tiger, on the contrary, though glutted with carnage, has ſtill an inſatiate thirſt for blood, his rancour has no intervals. With indiſcriminate fury he tears in pieces every animal he comes near, and deſtroys with the ſame ferocity a freſh animal as he had done the firſt. Thus he is the ſcourge of every country he inhabits; and of the appearance of man, or his weapons, he is fearleſs. He will deſtroy whole flocks of domeſtic animals if he meets with them, and all the wild animals that come in his way. He attacks the young elephant and rhinoceros, and will ſometimes brave the lion himſelf.

The form of the body uſually correſponds with the nature and diſpoſition. The noble air of the lion, the height of his limbs in exact proportion to the length of his body, his large thick mane, which covers his ſhoulders and ſhades his face, his determined aſpect, and ſolemn pace, ſeem to announce the dignity and majeſtic intrepidity of his nature. The tiger, with a body too long, limbs diſproportionally ſhort, naked head, haggard eyes, are ſtrong characteriſtics of deſperate malice and inſatiable cruelty. He has no inſtinct but an uniform rage, a blind fury, ſo undiſtinguiſhing that he not unoften devours his own progeny, and even tears the dam in pieces if ſhe offers to defend them. Would he were to gratify his thirſt for blood in exceſs, and by deſtroying them at their birth he might extinguiſh the whole race of monſters which he produces!

Happy is it for other animals that the ſpecies of tiger is not numerous, and that it is chiefly confined to the warmeſt provinces of the Eaſt. They are found in Malabar, Siam, Bengal, and in all the countries inhabited by the elephant and rhinoceros. It is, indeed, ſaid, that they accompany the latter for the purpoſe of eating their dung, which ſerves to purge them. Be this as it may, they are often ſeen together at the ſides of lakes and rivers, where they are probably compelled to go by thirſt, having often occaſion for water to cool that fervour they conſtantly endure. It is alſo a convenient ſituation to ſurpriſe his victims, ſince the heat of the climate compels all animals to ſeek for water ſeveral times a day; here he chooſes his prey, or rather multiplies his maſſacres, for having killed one animal, he often proceeds to the deſtruction of others, tearing open their bodies, and ſwallowing their blood by long draughts; for which their thirſt ſeems never to be appeaſed.

When, however, he has killed a large animal, as an horſe, or buffalo, he does not devour it on the ſpot, for fear of being diſturbed, but drags it off to the foreſt, which he does with ſuch eaſe, that the ſwiftneſs of his courſe ſeems ſcarcely retarded by the enormous load he ſuſtains. From this circumſtance we might judge of his ſtrength, but of which we ſhall have a more juſt idea by conſidering his bodily dimenſions. Some travellers have compared him for ſize to the horſe, others to the buffalo, and others merely ſay he is larger than the lion; but we have accounts more recent, which deſerve the utmoſt confidence. I have been aſſured by M. de la Lande-Magon that he ſaw a tiger in the Eaſt Indies fifteen feet long; ſuppoſing he includes the tail, and allowing four feet for that, the body would ſtill be more than ten. It is true that the ſkin preſerved in the Royal Cabinent of France is not more than ſeven feet from the tip of the noſe to the inſertion of the tail; but this tiger had been taken very young, and was afterwards always confined in a very narrow apartment, where the want of exerciſe, and ſpace to range in, the reſtraint of confinement, and perhaps not having proper nouriſhment, not only its life might have been ſhortened, but the growth of its body prevented. From the diſſection of animals of every ſpecies, that have been reared in houſes or court-yards, we find that their bodies and members, for want of exerciſe, never attain their natural dimenſions, and that the organs which are not uſed, as thoſe of generation, are ſo little expanded as to be ſcarcely perceivable. The difference of climate alone is capable of producing the ſame effects as confinement and want of exerciſe. None of the animals of hot countries produce in cold ones, even though well fed, and at full liberty; and as reproduction is a natural conſequence of full nutrition, it is evident that when the former does not operate the latter muſt be incomplete; and that, in ſuch animals, cold of itſelf is ſufficient to reſtrain the powers of the internal mould, and to diminiſh the growth, ſince it deſtroys the active faculties of reproduction. By no means is it, therefore, ſurpriſing that the tiger above alluded to ſhould not have acquired its natural growth; yet from a bare view of its ſtuffed ſkin, and an examination of its ſkeleton, we may form an idea of its formidable ſtrength as an animal. Upon the bones of the legs there are inequalities which denote muſcular ligatures ſtronger than thoſe of the lion. Theſe bones are alſo to the full as ſtrong, though ſhorter; and, as already intimated, the height of the tiger's legs bears no proportion to the length of his body. Thus that velocity which Pliny aſcribes to him, and the word *tiger* ſeems to imply, ought not to be underſtood of his ordinary movements, or celerity of his continued courſe; for it is evident, that as his legs are ſhort he can neither walk nor run ſo faſt as thoſe animals which have them proportionally longer; but this prodigious ſwiftneſs may with great propriety be applied to the extraordinary bounds he is capable of making without any particular effort, for if we ſuppoſe him to have the ſame ſtrength and agility in proportion with the cat, which he greatly reſembles in conformation, and which in an inſtant will leap ſeveral feet, we muſt allow that the bounds of a tiger, whoſe body is nine times as large, muſt be immenſe. It is not, therefore, the quickneſs of his running, but of his leaping that Pliny meant to denote, and which, from the impoſſibility of evading, when he has made a ſpring, renders him ſtill more formidable.

The tiger is, perhaps, the only animal whoſe ſpirit cannot be ſubdued. Neither force nor reſtraint, violence nor flattery, can prevail in the leaſt on his ſtubborn nature. To the gentle treatment of his keeper he is equally averſe as to hard uſage; and time, inſtead of mollifying his diſpoſition, only ſerves to increaſe his fierceneſs and malignity. With equal wrath he ſnaps at the hand that feeds as that which chaſtiſes him. He roars at the ſight of every object which lives, and ſeems to conſider all as his proper prey, and which he ſeems to devour before hand, as it were, with a look, menacing it with the grinding of his teeth, and, regardleſs of his chains, makes efforts to dart upon it, as if to ſhew his malignity when incapable of exerting his force.

To complete the idea of the ſtrength of this terrible animal we ſhall quote Father Tachard's account of a combat between a tiger and three elephants at Siam, of which he was an eye-witneſs; he ſays, "a lofty palliſade of bamboo-cane was built, about an hundred feet ſquare, into which incloſure three elephants were introduced, for the purpoſe of fighting a tiger. Their heads and part of their trunks were covered with a kind of armour, like a maſk. As ſoon as we arrived at the place a tiger was brought forth, of a ſize much larger than any we had ſeen before; he was not at firſt let looſe, but held by two cords, ſo that he could not make a ſpring; one of the elephants approached and gave him three or four blows on the back with his trunk, with ſuch force as to beat him to the ground, where he lay for ſome time without motion, as if he had been dead: although this firſt attack had greatly abated his fury, he was no ſooner untied, and at liberty, than he gave a loud roar, and made a ſpring at the elephant's trunk, which was ſtretched out to ſtrike him; but the elephant drew up his trunk with great dexterity, received the tiger upon his tuſks, and toſſed him up into the air. This ſo diſcouraged him that he no more ventured to approach the elephant, but made ſeveral turns round the palliſade, making ſeveral efforts to ſpring at the ſpectators. Shortly after a ſecond, and then a third elephant was ſet againſt him, each of which gave him ſuch blows that he once more lay for dead, and they certainly would have killed him had not an end been put to the combat." From this account we may form ſome idea of the ſtrength and ferocity of the tiger; for this animal, though young, and not arrived at his full growth, though reduced to captivity, and held by cords, yet he was ſo formidable to three ſuch enormous foes, that it was thought neceſſary to protect thoſe parts of their bodies which were not defended by impenetrable ſkin.

The tiger, of which an anatomical deſcription was made by the Jeſuits at China, and communicated by Father Gouie to the Academy of Sciences, ſeemed to be the true ſpecies *, as does alſo that which the Portugueſe have diſtinguiſhed by the name of Royal Tiger. Dellon expreſsly ſays, in his Travels, that tigers abound more in Malabar than in any other part of the Eaſt Indies; that their ſpecies are numerous, but that the largeſt, which is as big as an horſe, and called by the Portugueſe the Royal Tiger, is very rare. To all appearance, then, the Royal Tiger is not a different ſpecies; he is found in the Eaſt Indies only; and, notwithſtanding what has been ſaid by Briſſon, and others, is an utter ſtranger at Braſil. I am even inclined to think that the real tiger is peculiar to Aſia, and the inland parts of the ſouth of Africa; for though the generality of travellers,

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* This tiger was ſtreaked, and had been ſlain, with four others, in the field, by the Emperor, it weighed 265lbs. but one of them weighed 400; when diſſected, one-third of its ſtomach was full of worms, and yet it could not be ſaid the animal had begun to putrify. *Hiſt. Acad.* 1669.

lers, who have frequented the African coaſts ſpeak of tigers as very common, yet it is very plain, from their own accounts of them, that they are either leopards, panthers, or ounces. Dr. Shaw ſays, that the lion and panther hold the firſt rank at Tunis and Algiers, and that in thoſe parts of Barbary the tiger is an animal unknown. This obſervation ſeems founded in truth, for they were Indian, and not African, ambaſſadors, who preſented Auguſtus, while at Samos, the firſt tiger the Romans had ever ſeen; and it was alſo from the Indies that Heliogabulus procured thoſe tigers, with which, in order to repreſent the god Bacchus, he propoſed that his car ſhould be drawn.

Thus the ſpecies of the tiger has always been more rare and leſs diffuſed than that of the lion. The female, like the lioneſs, however, produces four or five cubs at a time. She is fierce at all times, but, upon her young being in danger, her fury becomes exceſſive. She then braves every danger to ſecure them, and will purſue the plunderers of them with the greateſt inveteracy, and who are often obliged to drop one to ſecure the reſt; this ſhe takes up and conveys to the neareſt cover, and then renews the purſuit, and will follow them to the very gates of towns, or to the ſhips in which they may have taken refuge; and when ſhe has no longer hopes of recovering her young, ſhe expreſſes her agony by the moſt diſmal howls of deſpair.

The tiger teſtifies his anger in the ſame manner as the lion; he moves the ſkin of his face, ſhews his teeth, and roars in a frightful manner; but the tone of his voice is very different; and ſome travellers have compared it to the hoarſe croak of certain large birds; and the ancients expreſſed it by ſaying, *Tigrides indomitæ raucant, ruguintque Leones.*

The ſkins of theſe animals are much eſteemed, particularly in China; the Mandarines cover their ſeats and ſedans with them, and alſo their cuſhions and pillows in winter. In Europe, though ſcarce, they are of no great value; thoſe of the panther and leopard being held in much greater eſtimation. The ſkin is the only advantage, trifling as it is, which man can derive from this dreadful animal. It has been ſaid of him that his ſweat is poiſonous, and the hair of his whiſkers is more dangerous than an envenomed arrow; but the real miſchiefs he does when alive are ſufficient, without giving imaginary ones to parts of his body when dead; for certain it is, the Indians eat the fleſh of the tiger, and that they neither find it diſagreeable nor unwholeſome.

## THE PANTHER, OUNCE, AND LEOPARD.

IN order to avoid an erroneous uſe of names, to prevent doubt, and baniſh ambiguity, it may be neceſſary to remark that, in Aſia and Africa, there are, beſide the tiger, whoſe hiſtory we have juſt given, three other animals of the ſame genus, but which not only differ from him, but alſo from each other. Theſe are the Panther, Ounce, and Leopard, which have been confounded together by naturaliſts, and alſo with a ſpecies of the ſame kind peculiar to America; but to prevent confuſion, we ſhall, in the preſent inſtance, confine ourſelves ſolely to thoſe of the old continent.

The firſt of theſe ſpecies is the Panther, (*fig*. 107.) which the Greeks diſtinguiſhed by the name of Pardalis, the Latins by that of Panthera, and Pardus, and the more modern Latins by Leopardus. The body of this animal, when attained its full growth, is five or

Engraved for Barr's Buffon

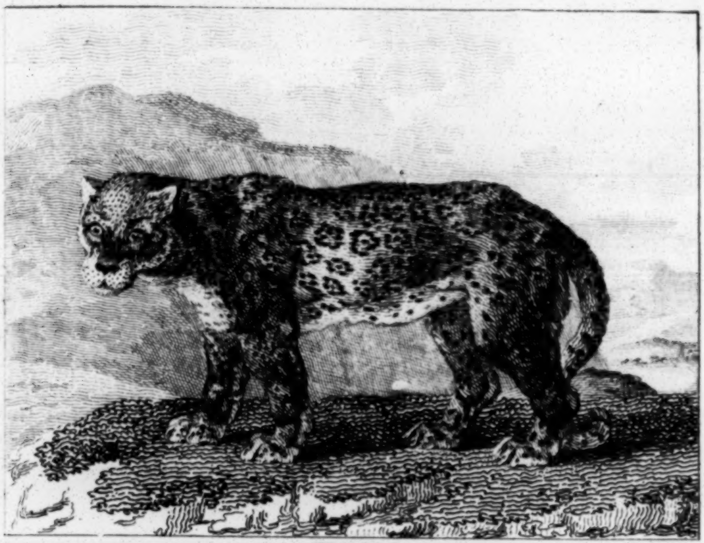

FIG. 107

Panther

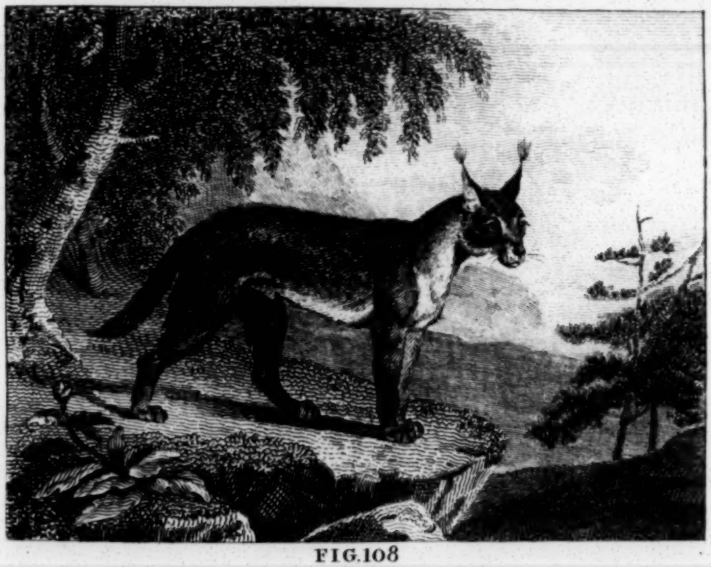

FIG. 108

Caracal

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ſix feet long, from the tip of the noſe to the inſertion of the tail, which is above two feet long. Its colour is of a yellow hue, more or leſs dark on the back and ſides, and whitiſh under the belly; it is marked with black ſpots which are circular, or in the form of a ring, and in which rings there are generally leſſer ſpots in the centre of the ſame colour; ſome of theſe are oval, others circular, and are frequently above three inches in diameter; on the face and legs the black ſpots are ſingle, and on the tail and belly they are irregular.

The ſecond is the Little Panther of Oppian, which the ancients have diſtinguiſhed by no particular name, but the moderns have called Ounce, corruptedly from the name of lynx or lunx. To this animal we ſhall preſerve the name of Ounce, becauſe, in fact, it ſeems to have ſome affinity to the lynx. It is much leſs than the Panther, its body being but about three feet and an half long, which is nearly the ſize of the lynx; its hair is longer than that of the panther, as is alſo its tail, which ſometimes meaſures three feet, although its body is one-third leſs than that of the panther, whoſe tail never exceeds two feet and an half. The colour of the ounce is whitiſh grey upon the back and ſides, and ſtill more white under the belly; the back and ſides of the panther are always yellow, but the ſpots are nearly of the ſame ſize and form in them both.

The third ſpecies was unknown to the ancients, being peculiar to Senegal, Guinea, and other ſouthern countries which they had not diſcovered ; and which we ſhall, following the example of travellers, call Leopard, a name which has been improperly applied to the panther. The Leopard is larger than the ounce, though conſiderably ſmaller than the panther, being only four feet in length, the tail meaſures from two to two feet and a half. On the back and ſides the hair is of a yellow colour, under the belly it is whitiſh ; it has black annular ſpots like thoſe of the panther and ounce, but ſmaller and leſs regularly diſpoſed.

Each of theſe animals, therefore, forms a different ſpecies. Our furriers call the ſkins of the firſt ſpecies panther ſkins ; thoſe of the ſecond, which we call ounce, African tiger ſkins ; and thoſe of the third, or leopard, very improperly tiger ſkins.

Oppian knew the panther and ounce, and was the firſt who obſerved there were two ſpecies of the former, the one large and the other ſmall ; though alike in the form of their bodies and the diſpoſition of the ſpots, yet they differed in the length of their tails, which in the ſmall ſpecies was longer than in the large ones. The Arabians have named the large panther Nemer, and the ſmall one Phet or Phed; which laſt ſeems to be a corruption of Faadh, the preſent name of this animal in Barbary. "The Faadh," ſays Dr. Shaw, in his Travels, "reſembles the leopard, (he ſhould have expreſſed it panther) in having ſimilar ſpots, in other reſpects they however differ, for the ſkin of the faadh is more dark and coarſe, and its diſpoſition is alſo leſs fierce." Beſides we learn from a paſſage of Albert, commented on by Geſner, that the phet or phed of the Arabs, is called in the Italian, and ſome other European languages Leunza, or Lonza. It is beyond a doubt then, that the little panther of Oppian, the phet or phed of the Arabians, the faadh of Barbary, and the onza, or ounce of the Europeans, is the ſame animal; and probably is alſo the Pard, or Pardus of the ancients, and the Panthera of Pliny; ſince he mentions its hair is white, whereas, as we have obſerved, that of the great Panther is yellow. It is, beſides, highly probable that the little panther was ſimply called pard or pardus, and that, in proceſs of time, the large panther obtained the name of leopard, or leopardus, from a notion that it was a mongrel ſpecies, which had aggrandized itſelf by an intermixture with that of the lion. As this could only be an unfounded prejudice, I have preferred the primitive name of panther to the modern compound one of leopard, which laſt I have applied to another animal that has hitherto been mentioned by equivocal names only. Thus the ounce differs from the panther in being ſmaller, having a longer tail, alſo longer hair, of a whitiſh grey colour; while the leopard differs from them both, by having a coat of a brilliant yellow, more or leſs deep, by the ſmallneſs of his ſpots, which are generally diſpoſed in groupes, as if each was formed by three or four united.

Pliny, and ſeveral after him, have ſaid, that the coat of the female panther was whiter than that of the male. This may be true of the ounce, but no ſuch difference have we ever obſerved in the panthers belonging to the menagerie of Verſailles, which were deſigned from life; and if there is any difference between the colour of the male and female it can be neither very permanent nor ſenſible; in ſome of the ſkins we have, indeed, perceived different ſhades, but which we rather aſcribed to the difference of age or climate than of ſex.

The animals deſcribed and diſſected by the Academy of Sciences, under the name of Tigers, and that deſcribed by Caius, in Geſner, under the name of Unica, are of the ſame ſpecies as our leopard; and of this there cannot remain a doubt, after comparing our figure, and the deſcription we have given, with thoſe of Caius and M. Perrault. The latter, indeed, ſays, that the animals ſo diſſected and deſcribed by the gentlemen of the Academy, were not the ounce of Caius; but the only reaſons he aſſigns are, that the ounce is ſmaller, and has not white on the under part of its body. It may alſo be obſerved, that Caius, who does not give the exact dimenſions, ſays, generally it was bigger than the ſhepherd's dog, and thicker than the bull-dog; how, therefore, Perrault ſhould aſſert the ounce or leopard to be ſmaller than the tigers diſſected by the gentlemen of the Academy I am at a loſs to conceive, for thoſe animals meaſured only four feet from the noſe to the tail, which is the exact length of the leopard we are now deſcribing. On the whole, then, it appears, that the tigers of the Academy, the ounce of Caius, and our leopard, are the ſame animal; and not leſs true do I conceive panther obtained the name of leopard, or leopardus, from a notion that it was a mongrel ſpecies, which had aggrandized itſelf by an intermixture with that of the lion. As this could only be an unfounded prejudice, I have preferred the primitive name of panther to the modern compound one of leopard, which laſt I have applied to another animal that has hitherto been mentioned by equivocal names only. Thus the ounce differs from the panther in being ſmaller, having a longer tail, alſo longer hair, of a whitiſh grey colour; while the leopard differs from them both, by having a coat of a brilliant yellow, more or leſs deep, by the ſmallneſs of his ſpots, which are generally diſpoſed in groupes, as if each was formed by three or four united.

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It is particularly neceſſary to obſerve, that neither of the animals we are now deſcribing can be claſſed with the pardus of Linnæus, or the leopardus of Briſſon, as they are deſcribed with having long ſpots on the belly, which is a characteriſtic that belongs not either to the panther, ounce, or leopard, and yet the panther of the ancients has it, as well as the pardus of Geſner, and the panthera of Alpinus; but from the reſearches I have made I am convinced that theſe three animals, and perhaps a fourth, which we ſhall treat of hereafter, and which have not theſe long ſpots on the belly, are the only ſpecies of this kind to be found in Aſia and Africa, and therefore we muſt hold this character of our nomenclators as fictitious, eſpecially when we recollect, that if any animals have theſe long ſpots, either in the old or new continent, they are always upon the neck or back, and never on the belly. To this we ſhall merely obſerve, that in reading the ancients we muſt not confound the panther with the panthera, the latter is the animal we have deſcribed, but the panther of Homer, and other ſcholiaſts, is a kind of timid wolf, perhaps the jackall, as I ſhall explain when I come to the hiſtory of that animal.

After having diſſipated the cloud under which our nomenclators ſeem to have obſcured Nature, and removed every ambiguity, by giving the exact deſcription of the three animals under conſideration, we ſhall now proceed to the peculiarities which relate to them reſpectively.

Of the panther, which we had an opportunity to examine alive, his appearance was fierce, he had a reſtleſs eye, a cruel countenance, precipitate motions, and a cry ſimilar to that of an enraged dog, but more ſtrong and harſh; his tongue was red and exceedingly rough, his teeth were ſtrong and pointed; his claws ſharp and hard; his ſkin was beautiful, of a yellow hue, interſperſed with black ſpots of an annular form, and his hair ſhort; the upper part of his tail was marked with large black ſpots, and with black and white ringlets towards the extremity; his ſize and make was ſimilar to that of a vigorous maſtiff but his legs were not ſo large.

All our travellers confirm the teſtimonies of the ancients as to the large and ſmall panther, that is our panther and ounce. It appears that there now exiſt, as in the days of Oppian, in that part of Africa which extends along the Mediterranean, and in the parts of Aſia which were known to the ancients, two ſpecies of panthers, the largeſt of which have been called panther or leopard, and the ſmaller ounce, by the generality of travellers. By them it is univerſally allowed that the ounce is eaſily tamed, that he is trained to the chace and employed for this purpoſe in Perſia, and in ſeveral other provinces of Aſia; that ſome ounces are ſo ſmall as to be carried by a horſeman on the crupper, and

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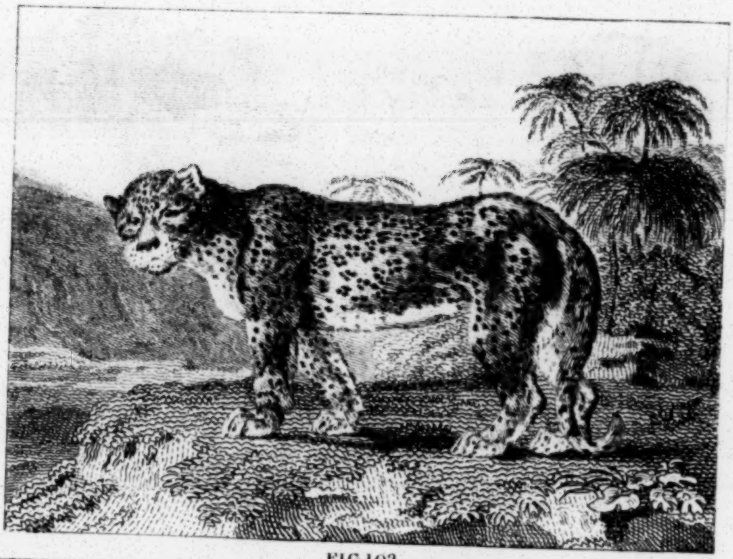

FIG. 103

*Leopard*

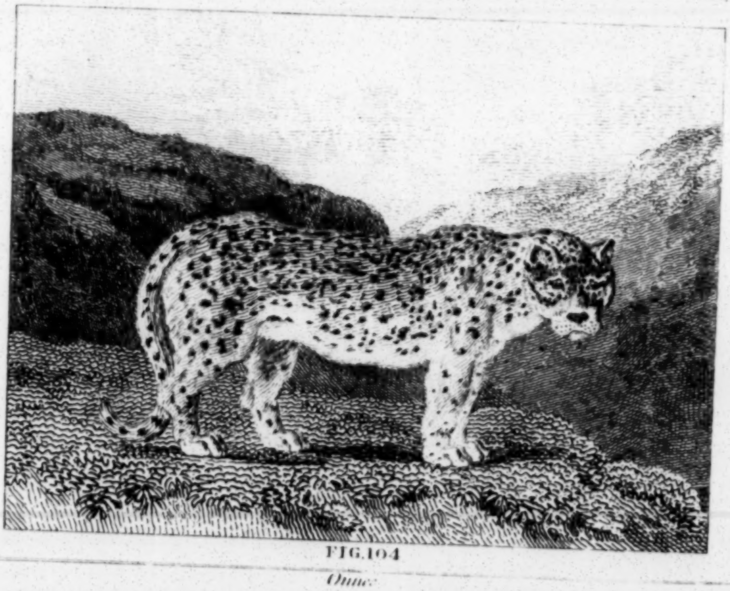

FIG. 104

*Ounce*

and ſo mild as to allow themſelves to be handled and careſſed *. The Panther appears to be of a nature more fierce and ſtubborn ; when in the power of man, and in his gentleſt moments, he ſeems rather to be ſubdued than tamed. Never does he entirely loſe the ferocity of his diſpoſition ; and in order to train him to the chace, much care and precaution are neceſſary. When thus employed, he is ſhut up in a cage and carried in one of the little vehicles of the country ; as ſoon as the game appears, the door is opened, and he ſprings towards his prey, generally overtaking it in three or four bounds, when he inſtantly diſpatches it ; but if diſappointed of his booty he becomes furious, and will even attack his maſter, who to prevent this dangerous conſequence, uſually carries with him ſome pieces of fleſh or live animals, as lambs or kids, one of which he puts in his way to appeaſe the fury ariſing from his diſappointment.

The ſpecies of the ounce *(fig. 104.)* ſeems to be more numerous, and more diffuſed than that of the panther ; it is very common in Arabia, Barbary, and the ſouthern parts of Aſia, Egypt, perhaps,

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* A particular account of this practice is related in Tavernier's Travels ; Chardin's Travel's in Perſia ; Geſner's Hiſt. Quad. Prof. Alp. Hiſt. Egypt. Bernier dans le Mcſul, &c.

perhaps excepted[*]. They are even known in China, where they are diſtinguiſhed by the name of *hinen-pao*[†]. The ounce is employed for the chace, in the hot climates of Aſia, becauſe dogs are very rarely to be found unleſs tranſported thither, and then they very ſoon loſe not only their voice, but their inſtinct[‡]. Beſides the panther, ounce, and leopard, have ſuch an antipathy to dogs, that they attack them in preference to all other animals[§]. In Europe our ſporting dogs have no enemy but the wolf; but in countries full of tigers, lions, panthers, leopards, and ounces, which are all more ſtrong and cruel than the wolf, to attempt to keep dogs would be in vain. As the ſcent of the ounce is inferior to that of the dog, he hunts ſolely by the eye; with ſuch vigour does he bound, that a ditch, or a wall of ſeveral feet high, is no impediment to his career; he often climbs trees to watch for his prey, and when near, will ſuddenly dart upon them; and this method is alſo often adopted by the panther and leopard.

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[*] Maſerier affirms there are neither lions, tigers, nor leopards in Egypt. *Deſcrip. Egypt, Tom. II.*

[†] A kind of leopard or panther found in the province of Pekin. *Thevenot.*

[‡] Vide Voyage de Jean Ovington, *Tom. I. p.* 278.

[§] The leopards, ſays le Maire, are deadly enemies to dogs, and devour all of them they meet.

The Leopard, (*fig.* 103.) has the ſame manners and diſpoſition as the panther; but in no part does he appear to have been tamed like the ounce; nor do the Negroes of Senegal and Guinea, where he greatly abounds, ever make uſe of him in the chace. He is generally larger than the ounce, but ſmaller than the panther; and his tail, though ſhorter than that of the ounce, is from two to two feet and a half in length. The leopard of Senegal and Guinea, to which we have particularly appropriated the name of leopard, is probably the animal which at Congo is called the *Engoi*; and perhaps alſo the *Antamba* * of Madagaſcar. I quote theſe names, from a perſuaſion than an acquaintance with the denominations applied to them in the countries, which they inhabit would encreaſe our knowledge of animals.

The ſpecies of the leopard ſeems to be ſubject to more varieties than that of the panther. I have examined many leopards ſkins which differed from each other, not only in the ground colour, but in the ſhade of the ſpots; but which are always ſmaller than thoſe of the panther or the ounce. In all leopards ſkins, the ſpots are nearly of the ſame ſize, and their chief difference conſiſts in their colour being deeper in ſome than in others; in being alſo more or leſs yellow, conſiſts alſo the difference in the hair itſelf; but as all theſe ſkins are nearly of the ſame ſize, both in the body and tail, it is highly probable they belong to the ſame ſpecies of animals.

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* The antamba is a beaſt as large as a dog; it has a round head, and, in the opinion of the Negroes, reſembles the leopard; it devours both men and cattle, and is only to be found in the moſt unfrequented parts of the iſland. *Flacourt's Voyage.*

The panther, ounce, and leopard, are only found in Africa, and in the hotteſt climates of Aſia; they have never been diffuſed over the northern, nor even the temperate regions. Ariſtotle ſpeaks of the panther as an animal of Aſia and Africa, and expreſsly ſays, it does not exiſt in Europe. It is impoſſible, therefore, that theſe animals, which are confined to the torrid zone of the old continent, could ever have paſſed to the new world by any northern lands; and it will be found, by the deſcription we ſhall give of the American animals of this kind, that they are a different ſpecies, and ought not to be confounded with thoſe of Africa and Aſia, as they have been by moſt of our nomenclators.

Theſe animals, in general, delight in the thickeſt foreſts, and often frequent the borders of rivers, and the environs of ſolitary habitations, to ſurpriſe their prey, equally ſeizing tame or wild animals. Men they ſeldom attack, even though provoked. They eaſily climb trees in purſuit of wild cats, and other animals. Though they live ſolely by prey, and are uſually meagre, travellers pretend that their fleſh is not unpalatable; the Indians and Negroes eat it, but they prefer that of the dog. With reſpect to their ſkins, they are all valuable, and make excellent furs. The moſt beautiful and moſt coſtly is that of the leopard, which, when the colours are bright, not unoften ſells for eight or nine guineas.

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## THE JAGUAR.

THE Jaguar,*(fig.* 105.*)* reſembles the ounce in ſize, and nearly ſo in the form of the ſpots upon his ſkin, and in diſpoſition. He is leſs ferocious than the panther or the leopard. The ground of his colour, like that of the leopard, is a bright yellow, and not grey like that of the ounce. His tail is ſhorter than that of either; his hair is longer than the panther's, but ſhorter than that of the ounce; it is frizzled when he is young, but ſmooth when at full growth. I never ſaw this animal alive, but had one ſent me entire and well preſerved in ſpirits, and it is from this ſubject our figure and deſcription has been drawn; it was taken when very young, and brought up in the houſe till it was two years old, and then killed for the very purpoſe of being ſent to me; it had not acquired its full growth, but it was evident, from a ſlight inſpection, that its full ſize would hardly have equally that of an ordinary dog. It is, nevertheleſs, an animal the moſt formidable, the moſt cruel, it is, in a word, the tiger of the new world, where Nature ſeems to have diminiſhed all the genera of quadrupeds. The Jaguar, like the tiger, lives on prey; but a lighted brand will put him to flight, and if his appetite is ſatisfied, he ſo entirely loſes all courage and vivacity, that he will fly from a ſingle dog. He diſcovers no ſigns of activity or alertneſs but when preſſed with hunger. The ſavages, by nature cowardly, dread his approach. They pretend he has a particular propenſity to deſtroy them, and that if he meets with indians and Europeans aſleep together, he will paſs the latter, and kill the former. The ſame thing has been ſaid of the leopard, that he prefers black men to the whites, that he ſcents them out, and can diſtinguiſh them as well by night as by day.

Almoſt all the authors who have written the Hiſtory of the New World, mention this animal, ſome by the name of tiger or leopard, and others under the names given them at Braſil, Mexico, &c. The firſt who gave a particular deſcription of him were Piſo and Marcgrave, they called him jaguara, inſtead of janouara, his Braſilian name. They alſo ſpeak of another animal of the ſame genus, and perhaps of the ſame ſpecies, under the name of jaguarette; but, like thoſe two authors, we have diſtinguiſhed them from each other, becauſe there is a probability of their being different ſpecies; but whether they are really ſo, or only varieties of the ſame ſpecies, we cannot determine, having never ſeen but one of the kinds. Piſo and Marcgrave ſay, that the jaguarette differs from the jaguar, by its hair being ſhorter, more gloſſy, and of a different colour, being black, interſperſed with ſpots of a ſtill deeper black. But from the ſimilitude in the form of his body, manners, and diſpoſition, he may, nevertheleſs, be only a variety of the ſame ſpecies, eſpecially as, according to the teſtimony of Piſo, the ground colour of the jaguar, as well as that of the ſpots, vary in different individuals; he ſays that ſome are marked with black, and others with red or yellowiſh ſpots; and with regard to the difference of colour, that is, of grey, yellow, or black, the ſame is to be met with in other ſpecies of animals, as there are black wolves, black foxes, black ſquirrels, &c. If ſuch variations are not ſo common among wild as tame animals, it is becauſe the former are leſs liable to thoſe accidents which tend to produce them. Their lives being more uniform, their food leſs various, and their freedom leſs reſtrained, their nature muſt be more permanent, that is, leſs ſubject to accidental alterations and changes in colour.

The jaguar is found in Braſil, Paraguay, Tucuman, Guiana, in the country of the Amazons, in Mexico, and in all parts of South America. At Cayenne, however, this animal is more ſcarce than the cougar, which they denominate red tiger, nor is the jaguar ſo common now in Braſil, which appears his native country, as it was formerly. A price has been ſet upon his head, ſo that many of them have been deſtroyed, and the others have with-

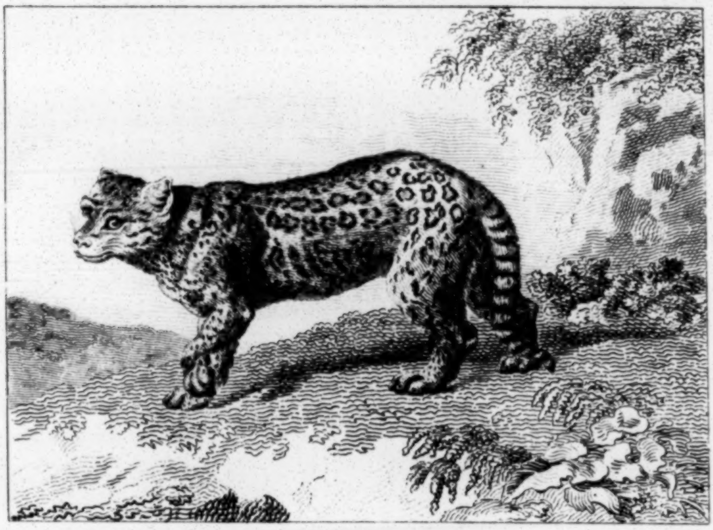

FIG.105

*Jaguar of New Spain*

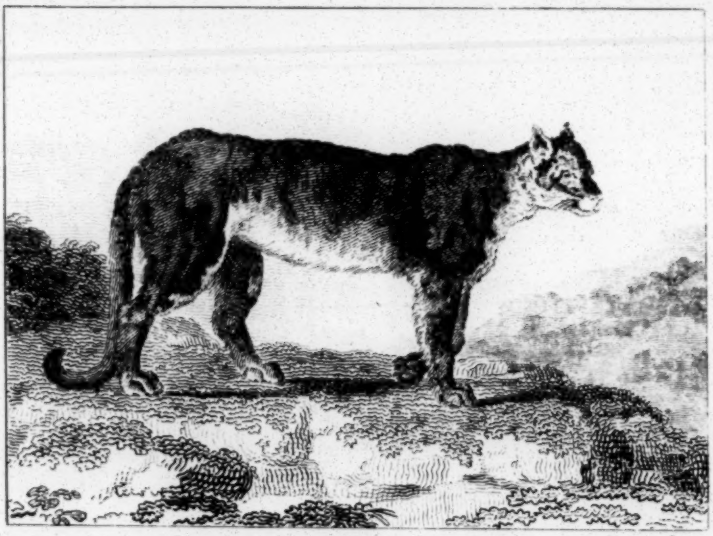

FIG.106

*Cougar*

drawn themſelves from the coaſts to the inland parts of the country. The jaguarette appears to have been always more ſcarce, or at leaſt to have inhabited thoſe places which were diſtant from the haunts of men, and the few travellers who mention him appear to have only drawn their accounts from Marcgrave and Piſo.

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## SUPPLEMENT.

M. le BRUN had a female Jaguar of New Spain *(fig. 105.)* ſent him in the year 1775; it appeared very young, and was much leſs than the one deſcribed in the original work, this meaſuring one foot eleven inches long, and the former two feet five inches; there was a great reſemblance between them, and the differences only ſuch as are common to the varieties of the ſame ſpecies. The ground colour of the one we are now ſpeaking of was a dirty grey intermixed with red: the ſpots were yellow, bordered with black; its head yellow, and ears black, with a white ſpot on the external part.

Among a number of excellent remarks made by M. Sonini de Manoncour, reſpecting the jaguars of Guiana, he ſays, "the hair of the young jaguar is not frizzled, as ſtated by M. de Buffon, but perfectly ſmooth, and with regard to their only equalling the ſize of an ordinary dog, I have had the ſkin of one that meaſured near five feet from the noſe to the tail, which was two feet long; and from the tracks I have ſeen of theſe animals I have little doubt of the American tigers being as large as thoſe of Africa, except the royal tiger, the largeſt animal to which that name is given; for the panther, which M. de Buffon conſiders the largeſt, does not exceed five or ſix feet when full grown, and certain it is ſome of theſe animals exceed thoſe dimenſions. When young their colour is a deep yellow, but which becomes lighter as they advance in years. He is not by any means an indolent animal; he conſtantly attacks dogs, commits great devaſtation among flocks, and in the deſarts are even formidable to men. In a journey I made through theſe foreſts, we were tormented with one for three ſucceſſive nights, and yet he avoided all our attempts to deſtroy him; but finding we kept up large fires, of which they are much afraid, he at laſt left us with a diſmal howling. At Cayenne the natives have an idea that the jaguar would rather deſtroy them than the whites, but it is not ſo with the ſavages, with whom I have travelled through the deſarts, and never found them to have any particular terror; they ſlept as we did, with their hammocks ſuſpended, making a little fire under them, which often went out before the morning; and, in ſhort, took no particular precautions, where they knew themſelves ſurrounded with thoſe animals. (This, obſerves M. Buffon, is a ſtrong proof that they are not very dangerous animals to men.) The fleſh of the jaguar is not good. All the animals of the new continent fly from him, not being able to withſtand his power: the only one capable of making any tolerable reſiſtance is the anteater, who, on being attacked, turns on his back, and often preſerves himſelf by the ſtrength of his long claws."

## THE COUGAR.

THE Cougar, *(fig. 106.)* is longer but leſs thick than the jaguar; he has a ſmall head, long tail, and ſhort hair, which is nearly of one entire colour, namely, a lively red, intermixed with a few blackiſh tints, particularly on his back. He is neither marked with ſtripes like the tiger, nor with ſpots like the panther, ounce, or leopard. His chin, neck, and all the inferior parts of his body are whitiſh. Though not ſo ſtrong as the jaguar he is as fierce, and perhaps more cruel. He appears more greedy of prey, for having once ſeized he kills it, and without waiting to tear it to pieces, he continues to eat and ſuck alternately, until he has gorged his appetite and glutted his bloodthirſty fury.

Theſe animals are common in Guiana. They have been known formerly to ſwim over from the continent to Cayenne, in order to devour the flocks; inſomuch that they were at firſt conſidered as the ſcourge of the colony; but by degrees the ſettlers leſſened their numbers, and by continually hunting them have compelled the remainder to retire far from the cultivated parts of the country. They are found in Braſil, Paraguay, and in the country of the Amazons; and there is reaſon to believe that the animal, deſcribed by ſome travellers, under the name of the Ocorome, in Peru, is the ſame as the cougar, as well as that in the country of the Iroquois, which has been conſidered as a tiger, though it is neither ſtriped like that animal, nor ſpotted like the panther.

The cougar, by the lightneſs of his body, and length of his legs, ſeems to be more calculated for ſpeed, and climbing of trees, than the jaguar. They are equally indolent and cowardly, when glutted with prey; and they ſeldom attack men unleſs they find them aſleep. When there is a neceſſity for paſſing the night in the woods, the kindling a fire is the only precaution neceſſary to prevent their approach. They delight in the ſhades of foreſts, where they hide themſelves in ſome buſhy tree, in order to dart upon ſuch animals as paſs by. Though they live only on prey, and drink blood more often than water, yet it is ſaid their fleſh is very palatable. Piſo ſays, it is as good as veal; and Charlevoix, and others, have compared it to mutton. I think it is hardly credible that the fleſh can be well taſted; and therefore prefer the teſtimony of Deſmarchais, who ſays, the beſt thing about this animal is his ſkin, his fleſh being generally lean and of a diſagreeable flavour.

## SUPPLEMENT.

MR. COLINSON mentions another ſpecies of cougar, which is found on the mountains of Carolina, Georgia, Pennſylvania, and the adjacent provinces, and which, from his account, ſeems to differ very much from that we have formerly deſcribed; his legs being ſhorter, and his body and tail much longer, but in colour, and in ſhape of the head, they have a perfect reſemblance.

M. de la Borde deſcribes three ſpecies of rapacious animals at Cayenne; firſt, the jaguar, which they call tiger; the ſecond, the cougar, or red tiger; (the former is about the ſize of a large bull-dog, and the latter much ſmaller) and the third they call black tiger, which we have termed black cougar. *(fig. 102.)* "Its head, continues M. de la Borde, is ſomewhat like that of a common cougar; it has long black hair, a long tail, and large whiſkers, but is much leſs than the other. The ſkin of both the jaguar and cougar are eaſily penetrated even with the arrows of the Indians. When very hard ſet for food, they will attack cows and oxen; in this caſe they ſpring upon their backs, and having brought them to the ground, then tear them to pieces, firſt opening their breaſts and bellies, to glut themſelves with their blood; they then drag pieces of the fleſh into the wood, covering the remainder with branches of trees, and keeping near to feed upon it, until it begins to putrify, when they touch it no more. They will keep near a flock of wild hogs, for the purpoſe of ſeizing the ſtragglers, but cautiouſly avoid being ſurrounded by them. They often ſeek for prey on the ſea-ſhore, and devour the eggs left there by the turtles: they alſo make prey of the caïmans, or alligators, lizards, and fiſhes; to take the former, they uſe the craft of lying down by the edge of the water, which they ſtrike ſo as to make ſufficient noiſe to attract his attention, who will come towards the place, and no ſooner puts his head above water, than his ſeducer makes a certain ſpring at him, kills and drags him to ſome convenient place where he may devour him at leiſure. It is ſaid by the Indians, that the jaguar decoys the agouti in the ſame manner, by counterfeiting his cry. They ſometimes eat the leaves and buds of the Indian figs; they are excellent ſwimmers, and croſs the largeſt rivers. They ſeldom have more than one young at a time, which they hide in the trunks of hollow trees. They eat their fleſh at Cayenne, and, when young, it is as white as that of a rabbit."

The cougar is eaſily tamed, and rendered nearly as familiar as domeſtic animals.

## THE LYNX.

THE gentlemen of the Academy of Sciences have given a very accurate deſcription of the Lynx, and have diſcuſſed with equal ingenuity and erudition the circumſtances and names relative to this animal, which occur in the writings of the ancients. They have ſhewn that the lynx of Ælian is the ſame animal which they have diſſected and deſcribed under the name of Lupus-carvarius, and juſtly cenſure thoſe who have taken it for the Thos of Ariſtotle. This diſcuſſion is enriched with obſervations and reflections equally intereſting and pertinent ; it is a pity, therefore, they had not adopted its real name of lynx, inſtead of that which is the ſame that Gaza gave to the *thos* of Ariſtotle. After, with great propriety, intimating, as Oppian had done, that there are two ſpecies or races of the lynx, the one large, which chaces the ſtag and fallow-deer, and the other ſmaller, which ſcarcely hunts any thing but the hare, they appear to have confounded the two ſpecies together, namely, the ſpotted lynx, which is commonly found in the northern countries ; and the lynx of the Levant or Barbary, whoſe ſkin is of an uniform colour. I have ſeen both theſe animals alive, and they cloſely reſemble each other in many particulars. They have both long ſtripes of black hair at the extremities of their ears. This very circumſtance, by which Ælian firſt diſtinguiſhed the lynx, belongs, in fact, to theſe animals only, and perhaps it was this which induced the Academy to conſider them as the ſame ſpecies. But, independent of the difference of colour and ſpots upon the hair, we ſhall find it extremely probable that they belong to two diſtinct ſpecies.

Klein ſays, that the moſt beautiful lynx belongs to Africa and Aſia in general, and to Perſia in particular ; that he had ſeen on at

Dreſden, that came from Africa, which was finely ſpotted, and of a conſiderable height; that thoſe of Europe, eſpecially from Pruſſia, and other northern countries are leſs pleaſing to the eye, that their colour is little, if at all, inclined to white, but rather of a reddiſh hue, with ſpots confuſed and huddled together. Without abſolutely denying what M Klein has advanced, I muſt declare I could never learn from any other authority that the lynx is an inhabitant of the warm climates of Aſia and Africa. Kolbe is the only writer who mentions the lynx as common at the Cape of Good Hope, and as perfectly reſembling that of Brandenburgh, in Germany; but I have diſcovered ſo many miſtakes in the writings of this author, that I never gave much credit to his teſtimony, unleſs when ſupported by that of others. Now all travellers mention having ſeen the ſpotted lynx in the North of Germany, in Lithuania, Muſcovy, Siberia, Canada, and other northern regions of both continents; but not one, whoſe accounts I have read, aſſerts he met with this animal in the warm climates of Africa or Aſia. The lynx of the Levant, Barbary, Arabia, and other hot climates, are, as I before obſerved, of one uniform colour, and without ſpots; they cannot, therefore, be the ſame as that mentioned by Klein, which he ſays was finely ſpotted, nor that of Kolbe, which, according to his ſtatement, perfectly reſembled thoſe of Brandenburgh. It would be difficult to reconcile theſe teſtimonies with the information we have from other hands. The lynx is certainly more common in cold than in temperate climates, and at leaſt is very rare in hot ones. He was, indeed, known to the Greeks and Romans; a circumſtance which does not, however, infer that he came from Africa, or the ſouthern provinces of Aſia. Pliny, on the contrary, ſays, that the firſt of them which were ſeen at Rome, came from Gaul in the time of Pompey. At preſent there are none in France, except poſſibly a few in the Alpine and Pyrenean mountains. The Romans, under the name of Gaul, comprehended ſeveral of the northern countries; and, beſides, France is not at this time ſo cold as it was in thoſe days alluded to by the Romans.

The moſt beautiful ſkins of the lynx came from Siberia, as belonging to the *Loup-cervier*, and from Canada, under the name of *chat-cervier*, becauſe, like all other animals, they are ſmaller in the new than in the old world; and are therefore compared to the wolf in Europe, and to the cat in Canada. What ſeems to have deceived M. Klein, and might ſtill more able writers is, firſt, the ancients have ſaid that India furniſhed lynxes to the god Bacchus; ſecondly, Pliny has placed the lynx in Ethiopia, and has ſaid their hides and claws were prepared at Carpathos, now Scarpantho, or Zerpantho, an iſland in the Mediterranean, between Rhodes and Candia; thirdly, Geſner has allotted a particular article to the lynx of Aſia or Africa, in which there is the following extract of a letter from Baron Balicze, "You have not," ſays he to Geſner, "mentioned in your hiſtory of animals, the Indian or African lynx. As Pliny has mentioned it, the authority of that great man has induced me to ſend you a drawing of this animal, that you may include it in your liſt. This drawing was made at Conſtantinople. This animal is very different from the lynx of Germany, being much larger, has ſhorter and rougher hair, &c." Geſner, without making any reflections on this letter, contents himſelf with giving the ſubſtance of it, and intimating, within parentheſis, that the drawing never came to hand.

To prevent a continuance of theſe errors, let it be obſerved, firſt, that the poets and painters have affixed tigers, panthers, and lynxes, to the car of Bacchus, as beſt pleaſed their fancies; or rather becauſe all fierce and ſpotted animals were conſecrated to that god; ſecondly, that it is the word *lynx* which conſtitutes the whole of the ambiguity, ſince by comparing what Pliny ſays in one * paſſage with two others † it is plain that the Ethiopian animal, which he calls lynx, is by no means the ſame as the chaus, or lupus-cervarius, which comes from the northern countries; and that it was by this name being improperly applied that the Baron Balicze was deceived, though he conſiders the Indian lynx as a different animal from the German lucks, or our lynx. This India or African lynx, which he has deſcribed as larger and more full of ſpots than our lynx, was, in all probability, a kind of panther. However true or erroneous this laſt conjecture may be, it appears that the lynx, of which we are now treating, is a ſtranger in the ſouthern countries, and is found only in the northern parts of the new and old continents. Olaus ſays this animal is common in the foreſts of the north of Europe; Olearius, in ſpeaking of Muſcovy, advances the ſame thing; Roſinus Lentilius obſerves that the lynx is common in Courland and Lithuania, and that thoſe of Caſſubia, a province of Pomerania, are very ſmall,

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* Vide Pliny, lib. VIII, cap. 19. † Ibid. VIII. c. 22, 23.

ſmall, and not ſo much ſpotted as thoſe of Poland and Lithuania; and, laſtly, Paul Jovius confirms theſe teſtimonies by adding, the fineſt ſkins of the lynx come from Siberia, and that there is a great traffic carried on with them at Uſtivaga, a town about 600 miles from Moſcow.

This animal, as we have ſhewn, prefers the cold to the temperate climates, and is one of thoſe which might have paſſed from one continent to the other through the northern regions, and this is probably the reaſon why we find him a tenant of the northern parts of America. Travellers have deſcribed him in a manner to preclude all miſtake; and beſides its ſkin forms an article of commerce between Europe and America. The lynx of Canada, as we have already remarked, is only ſmaller and whiter than thoſe of Europe, and it is from this difference in ſize that they have been diſtinguiſhed with the appellation of chat-cervier, and been conſidered by our nomenclators as animals of a different ſpecies. Without pronouncing deciſively upon this queſtion we ſhall only obſerve, that to all appearance the lynxes of Canada and of Muſcovy are of the ſame ſpecies, firſt, becauſe the difference in ſize is not very conſiderable, ſince it is almoſt relatively the ſame as that which takes place between all animals common to both continents; the wolf, fox, &c. being ſmaller in America than they are in Europe, it cannot be expected to be otherwiſe with the lynx. Secondly, becauſe, even in the north of Europe, theſe animals are found to vary in ſize; and authors mention two kinds, the one large and the other ſmall. Thirdly, becauſe they equally affect the ſame climate, are of the ſame diſpoſitions, the ſame figure, differing only in ſize, and a few trifling particulars of colour, circumſtances not ſufficient to authorize our pronouncing them to be two diſtinct ſpecies.

The lynx, of which the ancients have ſaid his ſight could penetrate opaque bodies, and whoſe urine poſſeſſed the property of hardening into a precious ſtone, called Lapis Lyncurius, is an animal that never exiſted, any more than the properties attributed to him, but in fable. To the true lynx this imaginary one has no affinity but in name. We muſt not, therefore, following the example of moſt naturaliſts, attribute to the former, which is a real being, the properties of this imaginary one, the exiſtence of which even Pliny himſelf does not ſeem diſpoſed to believe, ſince he ſpeaks of it as an extraordinary animal, and claſſes it with the ſphynx, the pegaſus, and other prodigies, or monſters, the produce of Ethiopia, a country with which the ancients were very little acquainted.

Our lynx, though he cannot ſee through ſtone walls, has bright eyes, a mild aſpect, and an agreeable lively appearance. His urine produces not precious ſtones, but he covers it with earth, like the cats, to whom he has a near reſemblance, and whoſe manners, and love of cleanlineſs, are the ſame. In nothing is he like the wolf but in a kind of howl, which being heard at a conſiderable diſtance often deceives the hunters, by making them ſuppoſe they hear a real wolf. This alone, perhaps, is the cauſe of his having received the appellation of *loup*, and to diſtinguiſh him from the real wolf, and becauſe he attacks the ſtags, the epithet of *cervarius* might have afterwards been added. The lynx is not ſo big as the wolf, has ſhorter legs, and generally about the ſize of the fox. He differs from the panther and ounce in the following particulars; he has longer hair, his ſpots are leſs lively, and are badly diſpoſed; his ears are much longer, and have tufts of black hairs at the points; his tail is ſhorter, and is alſo black at the end; his eyes have a whitiſh caſt, and his countenance is more agreeable, and leſs ferocious. The ſkin of the male is more ſpotted than that of the female. He does not run like the wolf, but walks and bounds like the cat. He lives upon other animals, and thoſe he purſues to the tops of the higheſt trees; neither the wild cat, pine-weaſel, ermine, nor ſquirrel, can eſcape him. He alſo ſeizes birds, lies in wait for the ſtag, roe-buck, and hare, whom he ſeizes by the throat, ſucks their blood, and then opens their heads to devour the brains; this done he frequently abandons them to go in ſearch of freſh prey, and is ſeldom known to return to the former one; which has given riſe to the remark, that of all animals the lynx has the ſhorteſt memory. His colour changes with the climate and the ſeaſon. In winter his fur is much better than in ſummer, and his fleſh, like that of all beaſts of prey, is not good to eat.

## SUPPLEMENT.

THERE is a Canadian Lynx in the Royal Cabinet in France, in fine preſervation; it is only two feet three inches long, and rather more than thirteen inches high; its body is covered with long grey hair, ſtriped with yellow, and ſpotted with black; its head is alſo grey, interſperſed with white and yellow hairs, and ſhaded with a kind of black ſtripes; it has long white whiſkers; its ears are more than two inches high, white on the inſide, with yellow edges, the outſide of a mouſe colour, edged with black, and at the tip of each ear is a tuft of black hairs ſeven lines high; it has a ſhort tail, which is black from the end to about the middle, and the other part is of a reddiſh white; its belly, hind-legs, inſide of the fore-legs and feet are of a dirty white, and it has long white claws. This lynx ſtrongly reſembles that we have before treated of, except in the length of the tail and tuft on the ears, from which we may infer that the Canadian Lynx is a variety from that of the old continent.

Pontoppidan deſcribes the lynx of Norway to be white with deep ſpots, and claws like thoſe of a cat; he ſays there are four ſpecies there, ſome being like the wolf, others the fox, others the cat, and others with an head like that of a colt; the laſt of which is not only doubtful in itſelf, but throws a degree of ſuſpicion on the veracity of the remainder.

The ſpecies of the lynx is very common throughout Europe, and alſo in the northern provinces of Aſia. Their ſkins are very valuable, and much eſteemed for muffs, &c. in Norway, Ruſſia, and even as far as China, and notwithſtanding they are very common, they ſell at an high price.

## THE CARACAL.

THOUGH the Caracal[*] reſembles the lynx in ſize, formation of the body, aſpect, and the tufts of black hair at the extremities of the ears.

[*] In Turkey it is called Kaarah-kula; in Arabia Gat el Challah; in Perſia Siyah-guſh, denoting in all three languages, *the cat with long ears.*

ears. I do not ſcruple from their diſagreement in other reſpects, to treat of them as animals of a different ſpecies. The Caracal is not ſpotted like the lynx; his hair is more rough and ſhorter; his tail is longer, and of an uniform colour; his ſnout is longer, in aſpect he is leſs mild, and in diſpoſition more fierce. The lynx inhabits cold and at moſt temperate climates, while the caracal is to be found only in warm countries. It is as much from theſe differences of diſpoſition and climate, that I judged them to be of different ſpecies, as from the inſpection and compariſon of the two animals, both of which we have examined and deſigned from life.

The caracal is common in Barbary, in Arabia, and in all thoſe countries inhabited by the lion, panther, and ounce. Like them he depends on prey for ſubſiſtence, but from the inferiority of his ſize and ſtrength, he has much difficulty to procure a ſufficiency; frequently being obliged to be content with the leavings of the more powerful. He keeps at a diſtance from the panther, becauſe that animal exerciſes its cruelty after being gorged with food; but he follows the lion, who, when the cravings of his appetite are ſatisfied, never injures any creature. From the remains left by this noble animal,

mal, the caracal not unoften enjoys a comfortable repaſt. Sometimes he follows, or even goes before, at no great diſtance, taking refuge in the trees, when ſelf-preſervation renders it neceſſary, and where the lion cannot, like the panther, follow him. For all theſe reaſons it is that the caracal has been called the Lion's Guide, or Provider; and it is ſaid that the lion, whoſe ſmell is far from being acute, employs him to ſcent out the prey, and is permitted to enjoy the remains as a reward for his trouble.

The caracal * *(fig.* 108.*)* is about the ſize of a fox, but more fierce, and much ſtronger. He has been known to attack, and in a few minutes tear in pieces a large dog, which defended himſelf to the utmoſt. He is very difficult to tame, yet if taken very young, and reared with care, he may be trained to the chace, to which he is by nature inclined, and in which he is very ſucceſsful, eſpecially if he is only let looſe upon ſuch animals as are inferior in ſtrength, for he declines a ſervice of danger with every expreſſion of reluctance.

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* The principal part of his body is of a reddiſh brown colour, the inferior parts of the neck and belly whitiſh; round his muzzle black, his ears of a dark ſhade, with a tuft of black hair from their extremities.

In India they made uſe of him to catch hares, rabbits, and even large birds, whom he ſeizes with ſingular addreſs and facility.

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### SUPPLEMENT.

Mr. BRUCE has informed me that he ſaw a caracal in Nubia, which differed from the one of Barbary, that we formerly deſcribed; his face was more round, his ears black on the outſide, intermixed with white hairs, and on the breaſt, belly, and inſide of the thighs he had yellow ſpots. But this is a mere variety, of which there are ſeveral, for inſtance, in Lybia there is a caracal with white ears, and a white tail with four black rings at the end, and which is not bigger than a domeſtic cat; and if this was to eſtabliſh a difference we might ſay there are two ſpecies of caracals in Barbary, the one large, with black ears and long tufts, and the other ſmaller, with white ears and ſhort tufts.

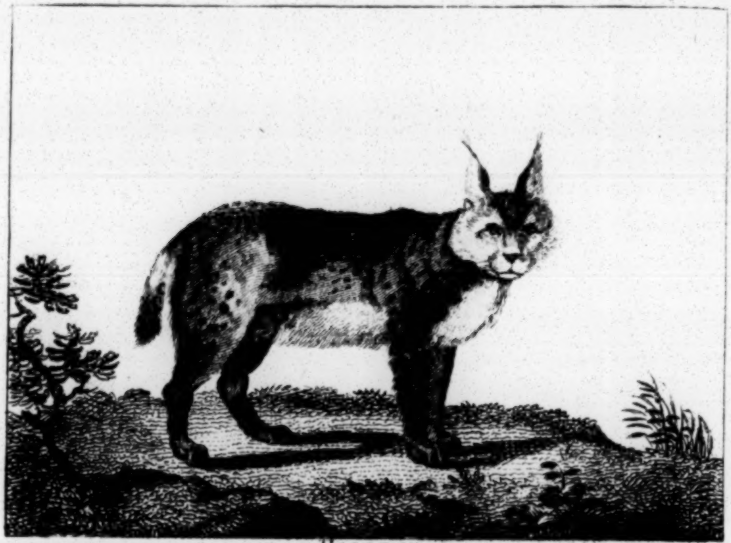

FIG.109.

*Lynx.*

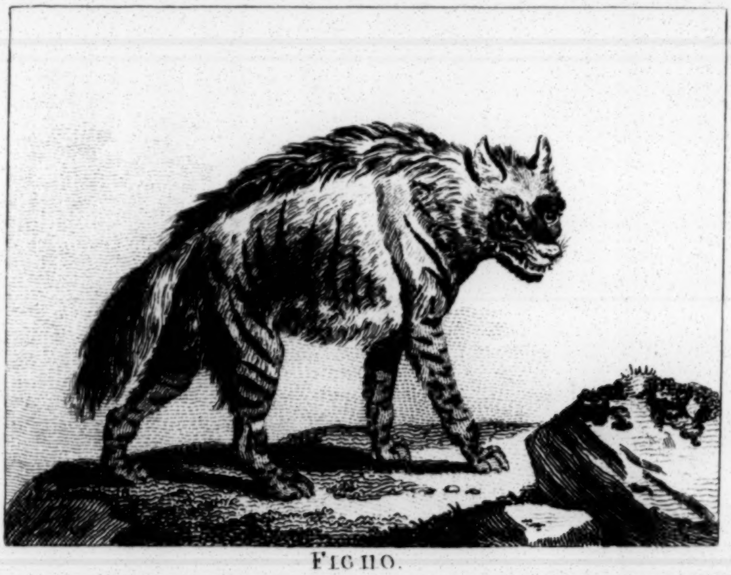

FIG.110.

*Hyæna.*

## THE HYÆNA.

ARISTOTLE has left us two characters by which alone the Hyæna *(fig.* 110.*)* might eaſily be diſtinguiſhed from all other animals. Nevertheleſs, travellers and naturaliſts have confounded him with no leſs than four other ſpecies, namely, the jackall, glutton, civet, and the baboon. They are all carnivorous and ferocious like hyæna, and all have ſome few particular reſemblances to him, from which theſe errors may have originated. The jackall inhabits the ſame countries, and like the hyæna reſembles the wolf in form ; like him alſo he feeds upon dead carcaſſes, and digs up graves to devour their contents. The glutton has the ſame voracity, the ſame appetite for corrupted fleſh, the ſame propenſity for digging the dead out of their graves ; and though he belongs to a different climate, and his figure is widely different from that of the hyæna, yet from this affinity of diſpoſition authors have thought themſelves warranted in conſidering them as of the ſame ſpecies. The civet is a native of the ſame countries as the hyæna, and like him has a ſtreak of long hair along the back, and alſo a particular opening, or glandular pouch; characteriſtics which belong only to a few animals, and which induced Bellon to ſuppoſe the civet was the hyæna of the ancients. As to the baboon, which has hands and feet like thoſe of a man or a monkey, he reſembles the hyæna ſtill leſs than the other three, and it muſt be ſolely from their name that they have been confounded together.

The hyæna, according to Dr. Shaw, is called *dubbah* in Barbary; and Marmol, and Leo Africanus, ſay, the baboon is diſtinguiſhed by the name of *dabuh*; and as the baboon belongs to the ſame climates, ſcratches up the earth and is nearly of the ſame form with the hyæna; theſe circumſtances firſt deceived travellers, and naturaliſts adopted their blunders, without inveſtigation; and even thoſe who diſtinguiſhed the two animals, retained the name of *dabuh* to the hyæna, which in fact belongs to the baboon. It appears, then, that the hyæna is neither the *dabuh* of the Arabians, the *jeſef* or *ſeſef* of the Africans, nor the *deeb* of Barbary. But to put a ſtop to this confuſion of names, I ſhall give, in a few words, the ſubſtance of the enquiries I have made with reſpect to thoſe animals.

Ariſtotle calls it by two names, hyæna and glanus; names we may be aſſured are applied to the ſame animals by comparing the paſſages wherein they are mentioned*. The ancient Latins retained the name hyæna, and never adopted that of glanus. In the writings of the modern Latins, however, we find the words *ganus*, or *gannus*, and *belbus* employed as names for the hyæna. According to Raſis, the Arabians call it *kabo*, or *zabo*, names that appear to be derived from the word *zeeb*, which, in their language, denominates a wolf. In Barbary the hyæna bears the name of *dubbah*, as appears from the deſcription given of this animal by Dr. Shaw†. In Turkey it is called *zirtlam*,

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[*] Ariſtotle Hiſt. Animals, lib. vi. c. 32. lib. viii. c. 5.

[†] The Dubbah is nearly the ſize of the wolf. Its neck is ſo exceedingly ſtiff, that when it offers to look behind, or even on one ſide, it is obliged to turn the whole body, like the hog, the badger, and the crocodile. Its colour is ſomewhat inclined to a reddiſh brown, with a few brown ſtreaks of a darker hue, it has very long hairs on the neck which it can occaſionally erect. Its paws are large and well armed, with which it digs up plants, and ſometimes dead bodies from their graves. Next to the lion and panther, the dubbah is the moſt fierce of all the animals of Barbary. As it is furniſhed with a mane, has a difficulty in turning the head, and ſcrapes up dead bodies from their graves, it has every appearance of being the hyæna of the ancients. *See Shaw's Travels.*

*zirtlam*, according to Nieremberg; in Perſia *kaftaar*, as ſtated by Kæmpfer; and *caſtar*, according to Pietro della Valle. Theſe are the only names which ſeem actually to refer to the hyæna; though it is nevertheleſs probable that the *lycaon* and the *crocuta* of India and Ethiopia, of which the ancients ſpeak, are no other than the hyæna. Porphyry expreſsly ſays, that the *crocuta* of the Indies is the hyæna of the Greeks; and, indeed, all they have written, whether true or fabulous, reſpecting the lycaon and crocuta, bears ſome analogy to the nature of the hyæna. But we ſhall make no farther conjectures on this ſubject until we treat of fabulous animals, and the affinities they have with real ones.

The panther of the Greeks, the *lupus canarius* of Gaza, and the *lupus Armenius* of the modern Latins and Arabians, ſeem to be the ſame animal, that is, the jackall, which the Turks call *cical*, according to Pollux, and *thacal* according to Spoon and Wheeler; which the modern Greeks diſtinguiſh by the name of *zachalia*, the Perſians *ſiechal*, or *ſchachal*, and the Moors of Barbary *deeb*; that of jackall having, however, been adopted by a number of travellers, to that we ſhall give the preference, and only remark at preſent, that he differs from the hyæna not only in ſize, figure, and colour, but in natural habits, for the hyæna is a ſolitary animal, while the jackall is ſeldom ſeen but in troops. After the example of Kæmpfer, ſome of our nomenclators have called the jackall *lupus aureus*, becauſe his hair is of a lively yellow hue.

From all which it is plain, that the jackall is a very different animal from the hyæna; and no leſs ſo than the glutton, which is an animal confined to the northern regions of Lapland, Ruſſia, and Siberia; it is a ſtranger even in the temperate climates, and therefore could never have inhabited Arabia, or any of the other warm countries in which the hyæna reſides. It differs alſo in form, for the glutton bears a ſtrong reſemblance to a very large badger; his legs are ſo ſhort that his belly almoſt reaches the ground; he has five toes on each of his feet, has no mane, and his body is covered with black hair, excepting ſometimes a few reddiſh-yellow hairs upon his ſides; in ſhort, he reſembles him in nothing but in being exceedingly voracious. He was unknown to the ancients, who had made no great progreſs into the north of Europe. Olaus is the firſt author who mentions this animal, and from his prodigious gluttony he called him *gulo*. In

Sclavonia he afterwards obtained the name of *roſomak*, and in Germany *jerff*, or *wildfras*, and the French travellers have called him *glouton*. There are varieties in this ſpecies, as well as in that of the jackall, which we ſhall ſpeak of when we come to the particular hiſtory of thoſe animals, and ſhall only here obſerve, that thoſe varieties, inſtead of aſſimilating them with the hyæna, render them more diſtinct ſpecies.

The civet has nothing in common with the hyæna but the glandular pouch, and the mane along the neck and back-bone. It differs from the hyæna in figure and ſize, not being more than half as large, his ears are ſhort and covered with hair, whereas thoſe of the hyæna are long and naked; he has alſo ſhort legs, and five toes upon each foot, while the legs of the hyæna are long, and he has only four toes upon each foot; nor does the civet dig up the earth in ſearch for dead bodies. From theſe differences theſe animals are eaſily to be diſtinguiſhed from each other.

With reſpect to the baboon, which is the *papio* of the Latins, and as we have before obſerved, has been miſtaken for the hyæna, merely from the ambiguity of names, which ſeems to have ariſen from a paſſage of Leo Africanus,

canus, and ſince copied by Marmot. They ſay, "the *dabuh* is of the ſize and form of the wolf; and ſcratches up dead bodies from their graves." From which it was ſuppoſed to mean the *dubbah*, or hyæna, although it is expreſsly ſtated in the ſame paſſages that the *dubah* has hands and feet reſembling thoſe of a man; a remark which, however applicable to the baboon, cannot be applied to the hyæna.

From taking a view of the *lupus-marinus* of Bellon, which Geſner has copied, we might miſtake it for the figure of the hyæna, to which it bears a great reſemblance; but his deſcription correſponds not with our hyæna, for he ſays, the *lupus-marinus* is an amphibious animal which feeds on fiſh, and has ſometimes been ſeen on the coaſts of the Britiſh ocean; and becauſe this author ſays nothing of the peculiar characteriſtics which diſtinguiſh the hyæna from all other animals. It is poſſible that Bellon, prepoſſeſſed with the notion that the civet was the hyæna of the ancients, has given the figure of the real one under the name of *lupus-marinus*, for ſo ſtriking and ſingular are the characters of that animal, that it is hardly poſſible to be deceived in them; he is, perhaps, the only quadruped that has four toes upon each foot. Like the badger he has an aperture under the tail, which does not penetrate into the body; his ears are long, ſtraight, and naked; his head is ſhorter and more ſquare than that of the wolf; his legs are longer, eſpecially the hind ones; his eyes are placed like thoſe of the dog; the hair of his body and mane is of a dark grey, with a ſmall intermixture of yellow and black, and diſpoſed all along in waves, and though in ſize he equals the wolf, yet he has, nevertheleſs, a contracted appearance.

This ſolitary animal reſides in the caverns of mountains, the clefts of rocks, or in dens, which he forms for himſelf under the earth. Though taken ever ſo young he is not to be tamed. He lives like the wolf, by depredation, and is more ſtrong and daring. He ſometimes attacks men, and darts with a ferocious reſolution on all kinds of cattle; he follows the flocks, and even breaks down the ſheep-folds of a night to get at his prey. His eyes ſhine in the dark, and it is aſſerted that he ſees better by night than day. All naturaliſts who have treated of this animal, except Kæmpfer, ſay, that his cry reſembles the noiſe of a man who is vomiting, while the latter aſſerts it to be like the lowing of a calf. He defends himſelf againſt the lion, ſtands in no awe of the panther, and attacks the ounce, which is incapable of reſiſting him. When at a loſs for prey he ſcrapes up the earth with his feet, and tears out the carcaſſes of animals and men, which in the countries he inhabits are promiſcuouſly buried in the fields. He is found in almoſt all the hot climates of Africa and Aſia, and it is probable that the animal called *faraſſe*, at Madagaſcar, which reſembles the wolf in figure, but is larger and ſtronger, is the ſame animal.

Of this animal more abſurd ſtories have been told than any other. The ancients have gravely written that the hyæna is alternately male and female; that when it brings forth, ſuckles and rears its progeny, it remains as a female the whole year, but the year following it reſumes the functions of the male, and obliges its companion to ſubmit to thoſe of the female. The circumſtance which gave riſe to this fable is plainly the orifice under the tail, which both males and females have, independent of the organs of generation peculiar to both ſexes, and which are the ſame in the hyæna as in all other animals. It has alſo been affirmed that this animal could imitate the human voice, remember the names of ſhepherds, call upon,

faſcinate,

faſcinate, and render them motionleſs; that it terrifies ſhepherdeſſes, cauſes them to forget and neglect their flocks, to be diſtracted in love, &c. All this might ſurely happen without the intervention of the hyæna! But I ſhall conclude here, to avoid the reproach which has been caſt upon Pliny, that of taking pleaſure in compiling and relating abſurd fables.

## SUPPLEMENT.

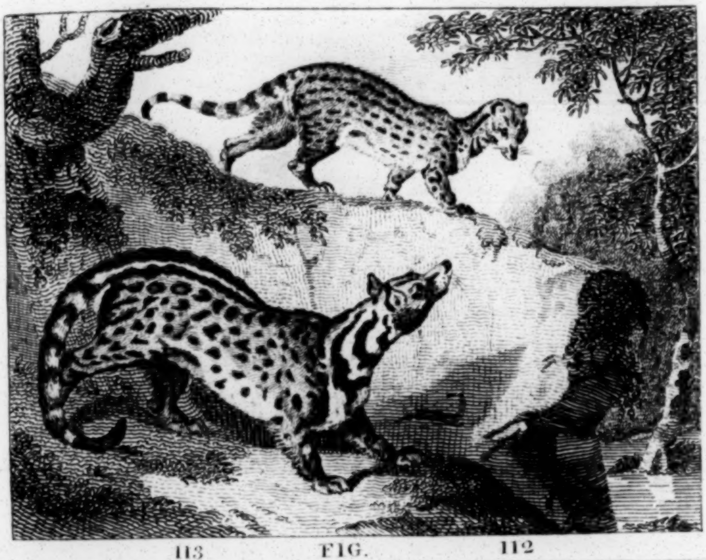
At the fair of St. Germain, in the year 1773, I ſaw a male hyæna; the one before deſcribed was very ferocious, and I mentioned untameable, but this was perfectly gentle, for though his keeper made him angry for the purpoſe of erecting his mane, yet he ſeemed to forget it in a few moments, and ſuffer himſelf to be played with without any appearance of diſlike. He exactly accorded with the deſcription I have given, except his tail being entirely white.

In the iſland of Meroë there is a large kind of hyænas, ſo ſtrong that they can run off with a man to the diſtance of more than a league without ſtopping. Theſe are alſo of a darker colour, and erect their long hairs on the hind parts and not the front. Mr. Bruce informs me that he has obſerved, that when the hyænas are forced to take to flight, they are at firſt exceedingly lame of the left hind leg, and which continues for more than an hundred paces, ſo much ſo indeed as to give them the appearance of falling, and that it is the ſame alſo with thoſe of Syria and Barbary.

## THE CIVET AND THE ZIBET.

THE generality of naturaliſts are of opinion that the perfume called civet, or muſk, is furniſhed only by one ſpecies of animals. I have, however, ſeen two animals that furniſh it, which, though they have many eſſential affinities, both in their external and internal conformations, yet differ in ſo many characteriſtics, that there is ſufficient reaſon to conſider them as two diſtinct ſpecies. To the firſt I have continued the original name of Civet, *(fig. 111.)* and the ſecond, for the ſake of diſtinction, I have called Zibet *(fig. 113.)* The *civet* ſeems to be the ſame as that deſcribed by the Academy of Sciences, by Caius, in Geſner, page 837, and by Fabius Columna, who has given both the male and female figures in the publication of Faber, which follows that of Hernandes. The *zibet* appears to be the ſame animal as M. de la Peyronnie has deſcribed under the name of Muſk Animal, in the Memoirs of the Academy of Sciences for the year 1731. Both differ from the civet in the very ſame characters; both want the mane, or the long hair, on the back-bone, and both have the tail marked with ſtrong annular ſtreaks. The civet, on the contrary, has a mane, but no rings on the tail. It muſt, however, be acknowledged that our zibet, and the muſk animal of M. de la Peronnie, are not ſo perfectly ſimilar as to leave no doubt of the identity of their ſpecies. The rings on the tail of the zibet are larger than thoſe of the muſk animal, and the length of his tail is ſhorter in proportion to that of his body; but theſe differences are ſlight, and appear to be mere accidental varieties, to which the civet muſt be more ſubject than any other wild animal, as they

*Engraved for Barrs Buffon*



113 FIG. 112

*Zibet* *Genet*

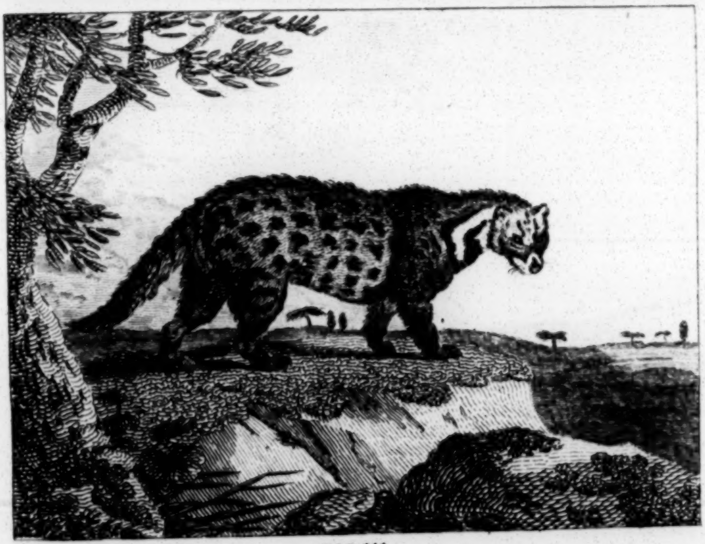


FIG.111

*Civet*

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are reared and fed like domeſtic ones in many parts of the Levant and Eaſt-Indies. Certain it is, that our zibet bears a ſtronger reſemblance to the muſk animal than to the civet, and conſequently they may be conſidered as the ſame ſpecies. Nor, indeed, do we mean poſitively to affirm that civet and zibet are not varieties of the ſame ſpecies, but from their different characteriſtics there is a ſtrong preſumption they really are ſo.

The animal which we here name the Civet, is called the *falanoue*, at Madagaſcar, *nzime*, or *nzfuſi* at Congo, *kankan* in Ethiopia, and *kaſtor* in Guinea. That it is the civet of Guinea I am certain, for the one I had was ſent from Guinea, to one of my correſpondents at St. Domingo, where, after being fed for ſome time, it was killed for the more eaſy conveyance to Europe.

The Zibet is probably the civet of Aſia, of the Eaſt Indies, and of Arabia, where he is called zebet, or zibet, an Arabic word, which likewiſe ſignifies the perfume of that animal. He differs from the civet, in having a longer body; a ſnout more thin and ſlender, and ſomewhat concave on the upper part; whereas that of the civet is more ſhort, thick, and rather convex.

vex. The ears of the zibet are alſo larger and more elevated; his tail is longer, and more ſtrongly marked; his hair is ſhorter and much more ſoft; he has no mane, or long hair on the neck or back-bone; no black ſpots under the eyes, or on the cheeks; all of which are remarkable characteriſtics in the civet. Some travellers ſuſpected there were two ſpecies of civets, but no perſon examined them with ſufficient accuracy as to give a diſtinct deſcription. I have ſeen both, and after a careful compariſon, am of opinion, that they not only differ in ſpecies, but perhaps belong to different climates.

Theſe animals have been called muſk-cats, though they have nothing in common with the cat. They rather reſemble the fox, eſpecially in the head. Their ſkins are diverſified with ſtripes and ſpots, which has occaſioned them to be miſtaken for ſmall panthers, when ſeen at a diſtance; but in every other reſpect they differ from the panther. There is an animal called the Genet, which is ſpotted in the like manner, whoſe head is nearly of the ſame ſhape, and which, like the civet, has a pouch where an odoriferous humour is formed; but this animal is ſmaller than our civet; its legs are ſhorter, and its body thinner; its perfume is very faint, and of ſhort duration; while the perfume of the civet is very ſtrong, and that of the zibet is ſo to an exceſs.

This humour is found in the orifice which theſe animals have near the organs of generation; it is nearly as thick as pomatum, and though the odour is very ſtrong, it is yet agreeable, even when it iſſues from the body of the animal. This perfume of the civet muſt not be confounded with muſk, which is a ſanguineous humour, obtained from an animal very different from either the civet or zibet, being a ſpecies of roe-buck, or goat, without horns, and which has no one property in common with the civets, but that of furniſhing a ſtrong perfume.

Theſe two ſpecies of civets have not been diſtinguiſhed with preciſion. They have both been ſometimes confounded with the weaſel of Virginia, the genet, the muſk-deer, and even with the hyæna. Bellon, who has given a figure and deſcription of the civet, inſiſts that it was the hyæna of the ancients, and his miſtake is the more excuſable not being deſtitute of ſome foundation. Certain it is, that moſt of the fables which have been related of the hyæna, took their riſe from the civet. The philters ſaid to have been obtained from certain parts of the hyæna, and their power to excite love, ſufficiently indicate that the ſtimulating virtues of the preparations of civet, were not unknown to the ancients, and which are ſtill uſed for this very purpoſe in the eaſt. What they have ſaid of the uncertainty of the ſex of the hyæna, is ſtill more applicable to the civet, for the male has no external appearance, but three apertures ſo perfectly ſimilar to thoſe of the female, that it is hardly poſſible to determine the ſex but by diſſection. The opening which contains the perfume, is ſituated between the other two, and in the ſame direct line which extends from the os ſacrum to the pubis.

Another, error, which has made more progreſs, is that of Gregoire de Bolivar, with reſpect to the climates in which the civet is found. After ſtating them to be common in Africa and the Eaſt Indies, he poſitively affirms they are alſo very numerous in all parts of South America. This aſſertion, tranſmitted by Faber, has been copied by Aldrovandus, and adopted by all the authors who have ſince treated of the civet. But the truth is, that they are animals peculiar to the hotteſt climates of the old continent, and which could not have found a northern paſſage into the new world; where, in fact, no civets ever exiſted until they were tranſported thither from the Phillipine Iſlands and the coaſts of Africa. As the aſſertion of Bolivar is poſitive, and mine only negative, it is neceſſary I ſhould give my particular reaſons, to prove the falſity of the fact. Beſides my own remarks, I refer to the very words of Faber himſelf *. On this head it is obſervable that the figure given by Faber, was left to him by Recchi, without any deſcription †; and of which the inſcription is, *animal zibethicum Americanum*; but this figure has no reſemblance to the civet or zibet, and rather repreſents the badger; ſecondly, Faber gives a deſcription and figures of a male and female civet, which reſemble our zibet; but theſe civets are not the ſame animal as that repreſented in the firſt figure; nor do they repreſent animals of America, but civets belonging to the old continent, of which Fabius Columna had procured drawings at Naples, and furniſhed Faber with their figures and deſcriptions; thirdly, after having quoted Bolivar reſpecting the climates in which the civet is found, Faber concludes with admiring Bolivar's prodigious memory, and that he was indebted for this recital to the

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* Novæ. Hiſp. Anim. Nardi Antonii Recchi Imagines & Nomina, Joannis Fabri Lyncei Expoſitione, p. 539.

† *Ibid.* p. 465.

oral information of that gentleman. Theſe three remarks are alone ſufficient to create a ſuſpicion, but what completely proves the error, Fernandes, in his deſcription of the animals of America, flatly contradicts Bolivar, and affirms that the civet was not a native of America, but that, in his time, they had began to tranſport ſome of them from the Phillipine Iſlands to New Spain. In fine, if we add this poſitive teſtimony of Fernandes, to that of all the travellers, who mention the civets are very common in the Phillipine Iſlands, in the Eaſt Indies, and in Africa, not one of whom intimates having ſeen this animal in America, every doubt will vaniſh of what we advanced in our enumeration of the animals of the two continents, and it will be admitted that the civet is not a native of America, but an animal peculiar to the warm climates of the old continent, and that he was never found in the new, until after he had been tranſported thither. Had I not guarded againſt ſuch miſtakes, which are too frequent, I ſhould have preferred our civet as an American animal, from its having been ſent to me from St. Domingo, and not directly from Guinea, the place of its nativity, of which I was, however, aſſured by the letter from M. Pagés which accompanied the animal. Theſe particular facts I conſider as confirmations to the general poſition, that there is a real difference between all the animals of the ſouthern parts of each continent.

Both the civet and zibet are then animals of the old continent, nor have they any other external differences beſides thoſe already pointed out; and as to their internal differences, and the ſtructure of their reſervoirs which contain the perfume, they have been ſo accurately deſcribed by Meſſrs. Morand and Peronnie, in the Memoirs of the Academy for 1728 and 1731, that I could do little more than give a repetition of their accounts. With regard to what remains to be further obſerved of thoſe two animals, as the few facts are hardly more applicable to the one than the other, and as it would be difficult to point out the diſtinction, I ſhall collect the whole under one head.

The civets, (by the plural number I mean the civet and zibet) though natives of the hotteſt climates of Aſia and Africa, can yet live in temperate and even cold countries, provided they are carefully defended from the injuries of the weather, and ſupplied with ſucculent food. In Holland they are frequently reared for the advantage obtained by their perfume. The civet brought from Amſterdam is preferred to that which comes from the Levant or the Indies, as being the moſt genuine. That imported from Guinea would be the beſt, were it not that the Negroes, as well as the Indians, and the people of the Levant, adulterate it with the mixtures of ſtorax, and other balſamic and odoriferous drugs and plants.

Thoſe who keep theſe animals to collect the perfume, put them into a narrow cage, in which they cannot turn themſelves; this cage opens behind, and two or three times in a week the animal is drawn a little out by the tail, and kept in that poſition by putting a bar acroſs the fore part of the cage; this done, the perſon takes out the perfume from the pouch with a ſmall ſpoon, ſcraping all the internal parts, and then, putting the matter into a veſſel, the greateſt care is taken to keep it cloſely covered. The quantity ſo procured depends greatly upon the appetite of the animal, and the quality of his nouriſhment, as he always produces more in proportion to the goodneſs of his food. Haſhed fleſh, eggs, rice, ſmall animals, birds, young poultry, and particularly fiſh, are the beſt, and which he moſt prefers; and theſe ought to be ſo varied as to excite his appetite and preſerve his health. He requires but little water, and though he drinks ſeldom, yet he diſcharges urine very frequently ; and even on ſuch occaſions, the male is not to be diſtinguiſhed from the female.

The perfume of the civets is ſo ſtrong that it communicates itſelf to all parts of the body ; the hair and ſkin is impregnated with it to ſuch a degree, that it preſerves the odour for a long time after it is ſtripped off. If a perſon be ſhut up in a cloſe room with one of them alive, he cannot ſupport the perfume, it is ſo copiouſly diffuſed. When the animal is enraged, its ſcent is more violent than ordinary, and if tormented ſo as to make him ſweat, that is alſo collected and ſerves to adulterate, or at leaſt encreaſe the perfume which is otherwiſe obtained.

The civets are naturally wild, and even ferocious ; and though tameable to a certain degree, they are never perfectly familiar. Their teeth are ſtrong and ſharp, but their claws are blunt and feeble. They are light and active, and live by prey, purſuing ſmall animals, and ſurpriſing birds. They can bound like cats, and run like dogs ; and ſometimes ſteal into yards and out-houſes to carry off the poultry. Their eyes ſhine in the dark, and they probably ſee better in the night than in the day. When they fail in procuring animal food, they ſubſiſt on roots and fruits. As they ſeldom drink they never inhabit moiſt places, but chearfully reſide among arid ſands and burning mountains. They breed very faſt in their native climates; but though they can live, and even produce perfume in temperate climates, yet they cannot multiply. They have a voice more powerful, and a tongue leſs rough than the cat, and their cry is not unlike that of an enraged dog.

The odorous humour which exudes from theſe animals is called civet in England and France, and zibet, or algalia, in Arabia, the Indies, and the Levant, where it is more uſed than in Europe. It is now very little employed as a medicine, but it is ſtill uſed as an ingredient in the compoſitions of perfumers and confectioners. The ſmell of the civet, though ſtronger, is more agreeable than that of the muſk. Both, however, loſt their repute when the method of preparing ambergris was diſcovered; and even that ſeems now to be proſcribed from the toilets of the polite and delicate.

## THE GENET.

THE Genet, *(fig.* 112.*)* is a ſmaller animal than the civet. He has a long body, ſhort legs, a ſharp ſnout, ſlender head, and ſmooth ſoft hair, of a gloſſy aſh colour, marked with black ſpots, which are round, and ſeparated on the ſides, but ſo nearly unite on the back as to have the appearance of ſtripes along the body. Upon the neck and back it has a kind of mane, which forms a black ſtreak from the head to the tail, the latter of which is as long as the body, and is marked with ſeven or eight rings, alternately black and white; the ſpots on the neck alſo appear to form ſtreaks, and it has a white ſpot under each eye. Under the tail, and in the very ſame place with the civets, it has a pouch, in which is ſecreted a kind of perfume, but is much weaker, and its ſcent ſoon evaporates. It is ſomewhat longer than the martin, which it greatly reſembles in form, habit, and diſpoſition; and from which it ſeems chiefly to differ in being more eaſily tamed.

Belon aſſures us, that he has ſeen them in the houſes at Conſtantinople as tame as cats, that they were permitted to run about without doing the leaſt miſchief, and that they were called Conſtantinople cats; though, indeed, they have nothing in common with that animal, except the ſkill of watching and catching mice. Naturaliſts pretend that genets inhabit only moiſt grounds, and reſide along the banks of rivers, and that they are never found on mountains or dry grounds. Their ſpecies is not numerous, or at leaſt not much diffuſed; for there are none of them in any part of Europe, except Spain and Turkey, in the former of which he probably obtained his name, as it is not derived from the ancients. They ſeem to require a warm climate to ſubſiſt and multiply in, and yet they are not found in India or Africa. The *foſſane* has been called the genet of Madagaſcar, but that animal is of a different ſpecies, as will hereafter be ſhewn.

The ſkin of the genet makes a light and handſome fur, it was formerly faſhionable for muffs, and conſequently very dear; but the manufacturers having got the art of counterfeiting them by painting the ſkins of grey rabbits with black ſpots, their value is abated, from being no longer eſteemed.

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## SUPPLEMENT.

I formerly ſtated that Genets were not to be found in any parts of Europe, except Spain and Turkey, but ſince then I have learned they are common in the ſouthern provinces of France, and that at Poitou they are known by that name even to the peaſantry. In April, 1775, the Abbé Roubard ſent me a genet that was killed at Livray, in Poitou, which, except ſome trifling variations in the colour of the hair, was ſimilar to that I have deſcribed; and he aſſured me that the ſpecies was alſo to be found in the neighbouring provinces; and M. Delpeche informed me, in a letter, that it was a conſtant practice with the peaſants of the province of Rouergue to bring dead genets to the merchants in the winter; he added, that they were not very numerous, that they were principally found near Villefranche, and that they burrow in holes like the rabbits, eſpecially in winter.

## THE BLACK WOLF.

WE mention this animal merely as a ſupplement to the deſcription we have given of the wolf, for there can be little doubt of their belonging to the ſame ſpecies. We have already ſaid, that in the northern parts of Europe there were ſome wolves black, and others white, and that the black wolves were generally the largeſt; but the one we are now about to deſcribe came from Canada, and was ſmaller than the common wolf; but of this we have had repeated occaſions to remark, that the animals of the northern parts of America were leſs in ſize than thoſe belonging to the north of Europe, and this difference in ſize was the chief, if not only variation in him; beſides, he had been taken very young, and ever after kept in a ſtate of captivity, which alſo might have prevented the completion of his growth. Our common wolf is leſs in Canada than in Europe; and in that country black wolves and foxes are not uncommon.

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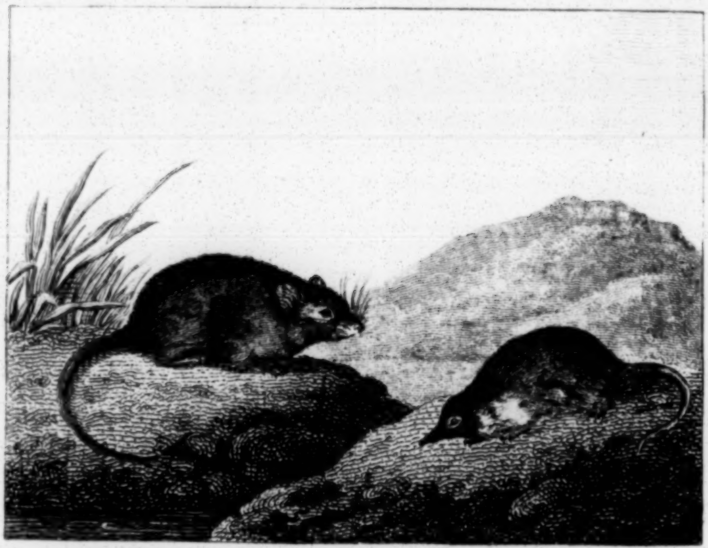

114 FIG. 115

*Canadian Musk Rat* *Muscovy Dº*

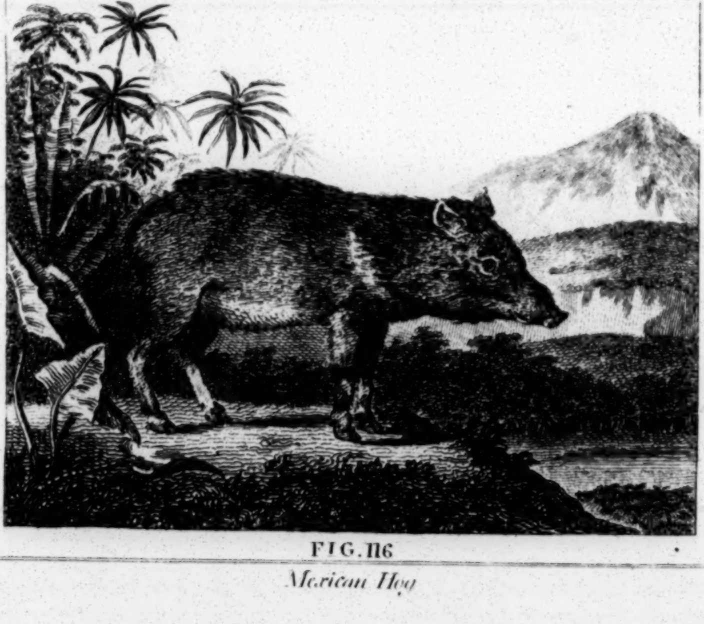

FIG. 116

*Mexican Hog*

We ſaw this animal alive, and to us it appeared perfectly to reſemble the common wolf both in figure and diſpoſition.

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## THE CANADIAN MUSK-RAT, AND THE MUSCOVY MUSK-RAT.

THOUGH theſe two animals have been denominated Muſk-rats, and have a few common characteriſtics, yet they ought not to be confounded; they muſt alſo be diſtinguiſhed from the Pilori, or Muſk-rat, of the Antilles; all three forming different ſpecies, and belonging to different climates; the firſt, alſo called Ondatra, is found in Canada; the ſecond, or Deſman, in Lapland and Muſcovy; and the Pilori, in Martinico and other of the Antilles iſlands.

The Muſk-rat of Canada *(fig.* 115.*)* differs from that of Muſcovy in having all its toes ſeparate, eyes very conſpicuous, and a ſhort noſe; whereas the latter *(fig* 114.*)* has the toes of the hind feet united by a membrane, exceedingly ſmall eyes, and a long noſe like the ſhrew-mouſe. Of both the tail is flat, in which, as well as in many other characteriſtics, they differ from the pilori of the Antilles. The tail of the pilori is ſhort, and, like that of other rats, cylindrical; the other two have long tails, and the head of the firſt is like that of a water-rat, and the head of the ſecond reſembles a ſhrew-mouſe.

In the Memoirs of the Academy of Sciences, for 1725, we meet with a very accurate deſcription of the Canadian muſk-rat. M. Sarraſin, a correſpondent of the Academy, diſſected a number of them at Quebec, and made ſome ſtriking and ſingular remarks; by comparing his deſcription with our own, we have not the leaſt doubt but the animal which he calls the muſk-rat of Canada, is the ſame with that now before us.

This animal is of the ſize of a ſmall rabbit, and of the figure of a rat. Its head is ſhort, and ſimilar to that of the water-rat; its hair is ſoft and gloſſy, with a thick down underneath, like that of the beaver; its tail is long and covered with little ſcales, like that of other rats, though of a different form, for inſtead of being cylindrical it is flat from the middle to the tip, and rather round at the inſertion. The toes are not united by membranes, but furniſhed with a long thick hair, which enables the animal to ſwim with eaſe. Its ears are very ſhort, but not naked, as in the common rat, but covered with hair, both outwardly and inwardly; its eyes are large; it has two inciſive teeth, about an inch long, in the under jaw, and two ſhorter ones in the upper; theſe four teeth are very ſtrong, and by them the animal is enabled to gnaw through wood.

The ſtriking ſingularities remarked by M. Sarraſin are, firſt, the muſcular force in the ſkin, which enables the animal to contract and compreſs its body into a ſmaller ſize. Secondly, the ſuppleneſs of the falſe ribs, which admits a contraction of body ſo conſiderable that the muſk-rat can obtain an eaſy paſſage through holes where ſmaller animals cannot find admiſſion. Thirdly, the manner in which the female voids her urine, the urethra not terminating, as in other animals, under the clitoris, but at an hairy eminence above the os pubis, and in which there is an orifice, that ſerves the urine to eſcape. This ſtrange organization is found in only a few ſpecies of animals, as rats and apes have three apertures; and thoſe two are perhaps the only animals who have a paſſage for the urine diſtinct from the organs of generation; to the females alone, however, does this ſingularity belong, for the conformation of the males is the ſame with that of other quadrupeds. M. Sarraſin obſerves, fourthly, that the teſticles which, as in other rats, are ſituated on each ſide of the anus, become exceedingly large, conſidering the ſize of the animal, during the rutting ſeaſon; but that over, they not only change in ſize, conſiſtency, and colour, but even in ſituation, and with the ſeminal veſſels, and all the organs of generation become almoſt inviſible. And, laſtly, that the veſſels which, contain the muſk, or perfume, of this animal, under the form of a milky humour, and which adjoin the parts of generation, undergo the ſame changes, that during the rutting ſeaſon they enlarge in a great degree, and then the perfume is exceedingly ſtrong, and may be ſenſibly diſtinguiſhed at a conſiderable diſtance, but at its expiration they become wrinkled, decay, and at length entirely diſappear. The change in the veſſels which contain the perfume is effected more quickly, and more completely, than that of the parts of generation. Theſe veſſels are common to both ſexes, and at the above periods contain a conſiderable quantity of milky humour; and the ſecretion is formed, and the humour voided, nearly in the ſame place as the urine of other quadrupeds. Theſe ſingularities were worthy the attention of ſo able an anatomiſt as M. Sarraſin. We have already mentioned ſimilar alterations in the parts of generation in the water-rat, the campagnol, and the mole; but this is not the place for us to enlarge on the general conſequences which might be drawn from theſe ſingular facts, nor even on the immediate references they may have to our theory of generation. Theſe we ſhall ſoon have occaſion to preſent with more advantage, by uniting them with other facts to which they relate.

As the Canadian Muſk-rat belongs to the ſame country as the beaver, is fond of water, and has nearly the ſame figure, colour, and hair, they have been often compared to each other; it is even affirmed, that, at the firſt glance, a full-grown muſk-rat may be miſtaken for a beaver of a month old. But in the form of their tails there is a conſiderable difference; that of the beaver being oval and flat horizontally; whereas that of the muſk-rat is of a conſiderable length, and flat, or compreſſed vertically. In diſpoſition and inſtinct, however, theſe animals have a ſtrong reſemblance. The muſk-rats, as well as the beavers, live in ſocieties during the winter. They form little dwellings about two feet and a half in diameter, and ſometimes larger, in which is often an aſſociation of ſeveral families. Theſe habitations are not for the purpoſe of reſorting to, in order to ſleep like the marmots, for five or ſix months, but to obtain a ſhelter from the inclemency of the weather ; they are of a round form, and covered with a dome about a foot thick ; the materials for making which are herbs and ruſhes interwoven together, and cemented with clay, which they prepare with their feet ; thoſe huts are impenetrable by the rain, and ſecured from the effects of inundations by being elevated on the inſide, and tho' covered with ſnow ſeveral feet thick in the winter, theſe animals do not ſeem to be thereby incommoded. They do not provide a ſtock of proviſions for that ſeaſon, but dig a kind of paſſages round their dwellings, for the purpoſe of procuring roots and water. As winter is not their ſeaſon of love, they reap little advantage from aſſociating. All this period they remain totally deprived of light, and therefore no ſooner has the mild breath of ſpring began to diſſolve the ſnow, and uncover the tops of their little manſions, than the huntſmen open their domes, ſuddenly dazzle them with the light, and kill or ſeize all thoſe who have not obtained ſhelter in their ſubterraneous paſſages; but as their ſkins are valuable, and their fleſh not unpalatable, thither they are alſo purſued for ſlaughter. Such as eſcape quit their habitations about the ſame time. They wander about during the ſummer but always in pairs, for then is the time of their amours; then it is that all their veſſels expand, and feeding largely upon the freſh roots and vegetables which the ſeaſon affords, they acquire a ſtrong ſmell of muſk; a ſcent which, though agreeable to Europeans, is ſo diſguſtful to the ſavages, that they diſtinguiſh one of their rivers, from being frequented by a number of them, the Stinking River, and the animal itſelf the Stinkard.

They produce once a year, and generally have five or ſix young. Their time of geſtation cannot be long, as they are not in ſeaſon till the ſummer, and their young are full grown by October, when they ſeek for ſhelter; they conſtruct new huts every year, and are never known to reviſit their former habitations. Their cry is a kind of groan, which the huntſmen imitate in order to allure them. So ſtrong are their fore-teeth, and ſo calculated for gnawing, that if ſhut up in a box, they ſoon make a hole large enough to eſcape through, a faculty which they poſſeſs in common with the beaver.

They do not ſwim ſo faſt, or ſo long as the beaver, and are often ſeen upon the ground; they run very indifferently, and in their walk they waddle like a gooſe. Their ſkin retains the ſmell of muſk, which renders it of little value to the furriers, but their under hair, or down, is uſed in the manufacture of hats. Theſe animals are not very wild, and when taken young are eaſily tamed; and are then tolerably handſome, for their tail, which is afterwards long and diſagreeable, is very ſhort. They play with all the innocence and ſprightlineſs of young cats, and they might be reared with eaſe but for their diſagreeable ſmell.

The Canadian and Muſcovy muſk-rats, are the only animals belonging to the northern regions which yield any perfume, for the odour of the *caſtoreum* (obtained from the badger) is highly diſagreeable; and it is only in warm climates that we meet with the animals which furniſh the real muſk, the civet, and other delicate perfumes.

The Muſk-rat of Muſcovy might, perhaps, preſent ſingularities analogous to thoſe of the Canadians, and not leſs remarkable, but it does not appear that any naturaliſt has yet had an opportunity to diſſect, or examine it alive. Of its exterior form alone can we ſpeak, as that ſent from Lapland, for the King's cabinet, was in a dry ſtate, and therefore I can only add my regret that ſo little is known of it.

## THE PECCARI, OR MEXICAN HOG.

AMONG the animals of the New World, few ſpecies are more numerous, or more remarkable, than that of the Mexican Hog*. *(fig.* 116.*)* At the firſt glance he reſembles our wild boar, or rather the hog of Siam, which, as we have already obſerved, is nothing more than a variety of the wild boar; and for which reaſon this has been called American wild boar, or American hog. He is, however, of a diſtinct ſpecies, and refuſes to engender either with our wild or domeſtic kinds; a circumſtance of which I was convinced, by having reared one of theſe animals in company with ſeveral ſows.

He differs alſo from the hog in a number of characteriſtics, both external and internal. He is leſs corpulent, and his legs are ſhorter; in the ſtomach and inteſtines, there is a difference of conformation. He has no tail, and his briſtles are much ſtronger than thoſe of the wild boar; and, laſtly, he has on his back, near the crupper, an opening from which there is diſcharged an ichorous humour of a very diſagreeable ſmell. This is the only animal which has an opening in this part of the body. In the civets, the badger, and the genet, the reſervoir for their perfume is ſituated beneath the parts of generation; and in the muſk-animal, and muſk-rat of Canada, we find it under the belly. The moiſture which exudes from this aperture in the back of the Mexican hog, is ſecreted by large glands, which M. Daubenton has deſcribed with much attention, as has alſo Dr. Tyſon in the Philoſophical Tranſactions No. 153. Without minutely detailing the obſervations of theſe two able anatomiſts, I ſhall barely remark, that the latter was miſtaken in aſſerting that this animal has three ſtomachs, or, as Mr. Ray ſays, a gizzard and two ſtomachs. M. Daubenton plainly ſhews, that it is only one ſtomach divided by two ſimilar pouches, which give it the appearance of three; that only one of theſe pouches has a pyrolus, or orifice below, for the diſcharge of its contents; that, conſequently, we ought to conſider the two others merely as appendages to, or rather portions of, the ſame ſtomach.

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* This animal has a variety of names; beſides the above, ſome call him *Tajaſſou*, *Tajacou*, *Paquira*, *Saino*, &c.

The Mexican hog might be rendered a domeſtic animal like the common kind; he has nearly the ſame habits and natural inclinations; feeds upon the ſame aliments, and his fleſh, though more dry and lean, is not unpalatable, and may be improved by caſtration. When killed, not only the parts of generation, if the fleſh is intended to be eaten, (as is alſo done with the wild boar) muſt be taken inſtantly away, but alſo the glands at the opening in the back, and which are common to both male and female, for if this operation be deferred for only half an hour, the fleſh becomes utterly unfit to be eaten.

Theſe animals are extremely numerous in all the parts of South America. They go in herds of two or three hundred together, and unite, like hogs, in the defence of each other. They are particularly fierce when their young are attempted to be taken from them. They ſurround their plunderers, attack them without fear, and frequently make their lives pay the forfeit of their raſhneſs. In their native country they prefer the mountainous parts to the low and level grounds; neither do they ſeek marſhes nor mud, like our hogs, but remain in the foreſts, where they ſubſiſt upon wild fruits, roots, and vegetables; they are an unceaſing enemy to all the ſerpent kinds, with which the uncultivated foreſts of the New Continent abound: as ſoon as they perceive a ſerpent, or viper, they ſeize it with their fore hoofs, ſkin it in an inſtant, and devour the fleſh.

Theſe animals are very prolific; the young ones follow the dam, and do not ſeparate from her till they are full grown. If taken young they are very eaſily tamed, and ſoon loſe all their natural ferocity, but they never ſhew any ſigns of docility, but continue ſtupid, without attachment, or even ſeeming to know the hand that feeds them. They do no miſchief, and may be permitted to run tame, without apprehending any dangerous conſequences. They ſeldom ſtray far from home, but return of themſelves to the ſtye: they never quarrel among each other, except when they are fed in the ſame trough. At ſuch times they have an angry grunt, much ſtronger and harſher than that of a common hog; but they ſeldom ſcream, only when ſuddenly ſurpriſed, or frightened, when they have a ſhrill manner of blowing like the wild boar. When enraged they draw their breath with great force, and point their briſtles upward, which more reſemble the ſharp armour of the hedge-hog than the briſtles of the wild boar.

The ſpecies of the Mexican hog is preſerved without alteration, and altogether unmixed with that of the European hog, which has been tranſported to, and become wild in, the foreſts of America. Theſe animals meet in the woods, and even herd together, and yet never produce an intermediate breed. It is the ſame with the Guinea hog, which has greatly multiplied in America, after being brought thither from Africa.

However approximate the ſpecies of the European hog, the Guinea-hog, and the peccari, may appear, it is, nevertheleſs, evident, that they are each diſtinct, and ſeparate from the others, ſince they inhabit the ſame climate without intermixture. Of the three, the ſtrongeſt, moſt robuſt, and moſt formidable, is our wild boar. The peccari, though equally fierce, is yet leſs active, and inferior as to the engines of defence, his tuſks being much ſhorter. This animal dreads the cold, and cannot ſubſiſt, without ſhelter, even in our temperate regions; nor can our wild boar exiſt in countries which are very cold; therefore it is impoſſible that either of them could have found a paſſage, from the one continent to the other, over any northern country; and therefore the Mexican hog cannot be conſidered as an European hog degenerated, or changed, by the climate of America, but as an animal peculiar to the ſouthern regions of that continent.

Ray, and other naturaliſts, have maintained, that the humour diſcharged from the back of the Mexican hog is a kind of muſk, an agreeable perfume, even as it exudes from the body of the animal; that it is perceived at a conſiderable diſtance, and perfumes every place he inhabits, and through which he paſſes. I have, I muſt own, a thouſand times experienced very contrary effects; for ſo diſagreeable is the ſmell of this moiſture, on being ſeparated from the body of the animal, that I could not collect it without being exceedingly incommoded. It becomes leſs fœtid by being dried in the air, but never acquires the agreeable ſmell of muſk, or of civet; and naturaliſts would have expreſſed themſelves with more propriety, if they had compared it to that of *caſtoreum*.

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## SUPPLEMENT.

M. DE LA BORDE ſays, there are two kinds of the Peccari, or Mexican hog, in Cayenne, which never intermix; the largeſt of which are black, excepting two white ſpots upon its jaws, and that the hair of the ſmall one is rather red; but I apprehend the differences are occaſioned by age, or ſome accidental circumſtance. He adds, that thoſe of the large ſize do not aſſociate with men; but they, however, as well as the ſmall, live in the woods, upon ſeeds, roots, and fruits; that they dig in the damp ſoils for worms, and that they go in flocks of two or three hundred. It is no difficult matter to ſhoot them, as, inſtead of flying, they collect together, and will ſtand ſeveral diſcharges; nay, they will even attack the dogs, and ſometimes men. He mentions an inſtance where he was out with a party, who were ſurrounded with a flock of theſe hogs, who were not to be intimidated by a continual firing, and were not diſperſed until ſeveral of them were killed. When taken young, they are ſoon rendered familiar, but they will not intermix with the domeſtic hogs. When living in their natural ſtate of freedom, he ſays, they often reſide in the marſhes, and will ſwim acroſs rivers. Their fleſh, though palatable, is not ſo good as the common hog; it has a ſtrong reſemblance to that of the hare, and is without lard or greaſe.

M. de la Borde ſpeaks of another ſpecies of hog found in Guiana, which he calls *Patira*, in theſe terms: "The patira is about the ſize of the ſmall Mexican hog, and the only difference is the former having a white ſtripe along the back; they live in large foreſts, and, in general, herd in families. They will defend themſelves againſt dogs, when hunted by them: when likely to be overpowered, they ſeek ſhelter in hollow trees, or in holes of the earth, that have been made by armadilloes, which they enter backwards. To get them out, the hunters take every means to irritate them, having firſt incloſed a ſpace round the hole, as being angry, they will quit their retreat, and the men, ſtanding prepared, deſtroy them with pitchforks and ſabres. If a hunter obſerves a ſingle one in a hole, and does not then wiſh to take it, he cloſes up the entrance, and is ſure to have him the next day. Their fleſh is ſuperior to that of other hogs. When caught young they are eaſily rendered domeſtic, but even then they preſerve their natural inveteracy againſt dogs, whom they attack on all occaſions. They conſtantly live in the marſhes, unleſs when entirely covered with water. The females produce two at a time, and they breed at all ſeaſons of the year. Their hair is ſoft, like that of the Mexican hog. When tamed they follow their maſters, and allow themſelves to be handled by thoſe they know, but ſtrangers they always threaten by ſhewing their teeth."

## THE ROUSETTE, OR TERNAT BAT, THE ROUGETTE, OR LITTLE TERNAT, AND THE VAMPYRE.

THE Rouſſette [*] and the Rougette [†] ſeem to form two diſtinct ſpecies, but they ſo nearly reſemble each other that they ought not to be preſented aſunder, as they differ only in the ſize of body and colour of hair. The Great Ternat, *(fig. 117.)* whoſe hair is of a reddiſh brown, is nine inches in length, from the tip of the noſe to the inſertion of the tail, and in breadth three feet, when the membranes, which ſerve it for wings, are fully extended. The Rougette, whoſe hair is of a reddiſh aſh colour, is hardly more than five inches and a half in length, and two feet in breadth, when the wings are extended; and its neck is half encircled with a ſtripe of a lively red, intermixed with orange, of which we perceive no veſtige on the neck of the rouſſette. They both belong nearly to the ſame hot climates of the old continent, are met with in Madagaſcar, in the iſland of Bourbon, in Ternat. the Philippines, and other iſlands of the Indian Archipelago, where they ſeem to be more common than on the neighbouring continents.

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[*] Alſo called the Flying Dog, and the Great Bat of Madagaſcar.

[†] Or the Red-necked Flying Dog.

In the hot countries of the New World, there is another flying quadruped, of which we know not the American name, but ſhall call it Vampyre, becauſe it ſucks the blood of men, and other animals while aſleep, without cauſing ſufficient pain to awaken them. This American animal is of a different ſpecies from the bats juſt mentioned, which are both to be found ſolely

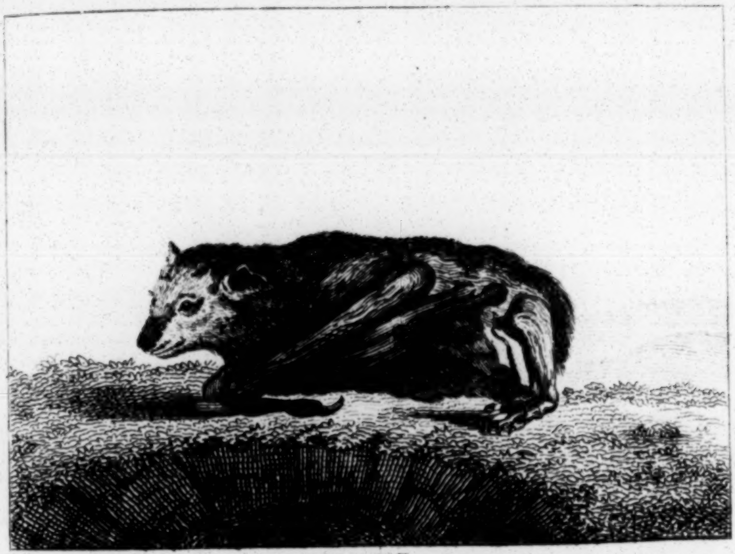

FIG: 117

*Ternat Bat*

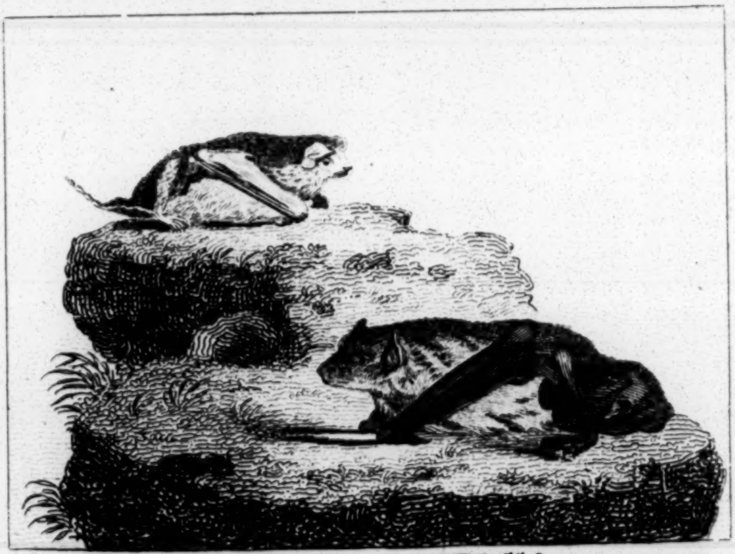

FIG: 118 FIG: 119

*Bull Dog Bat* *Senegal Bat*

ſolely in Africa, and in the ſouthern parts of Aſia.

The vampyre* is ſmaller than the rougette, which is itſelf ſmaller than the rouſſette. The firſt, when it flies, ſeems to be of the ſize of a pigeon, the ſecond of a raven, and the third of a large hen. Both the rouſſette and rougette have well ſhaped heads, ſhort ears, and round noſes, nearly like that of a dog. Of the vampyre, on the contrary, the noſe is long, the aſpect as hideous as that of the ugliest bats; its head is unſhapely, and its ears are large, open, and very erect; its noſe is deformed, its noſtrils reſembling a funnel, with a membrane at the top, which riſes up in the form of a ſharp horn, or cock's-comb, and greatly heightens the deformity of its face. There is no doubt, therefore, that this ſpecies is different from the Ternat bats. It is an animal not leſs miſchievous than it is deformed; it is the peſt of man, and the torment of other animals. In conformation of this, the authentic teſtimony of M. de la Condamine may be produced. "The bats," ſays he, "which ſuck the blood of horſes, mules, and even men, when they do not guard againſt it by ſleeping under the ſhelter of a pavilion, are a ſcourge common to moſt of the hot countries of America. Of theſe ſome are of a monſtrous ſize. At Borja, and ſeveral other places, they have entirely deſtroyed the large cattle which the miſſionaries had brought thither, and which had begun to multiply." Theſe facts are confirmed by many other hiſtorians and travellers. Petrus Martyr, who wrote not long after the conqueſt of South America, ſays, that there are bats in the iſthmus of Darien which ſuck the blood of men and animals while they are aſleep, ſo as to much weaken, and frequently kill them. Jumilla, Don George Juan, and Don Ant. de Ulloa, aſſert the ſame. Though from the above teſtimonies it appears, that theſe blood-ſucking bats are numerous, particularly in South America, yet a ſingle individual we have not yet been able to obtain. Seba has preſented us with a figure and deſcription of this animal, of which the noſe is ſo extraordinary, that I am aſtoniſhed travellers ſhould not have remarked a deformity ſo palpable as to ſtrike the moſt ſuperficial beholder ; poſſibly the animal of which Seba gives the figure, is not the ſame with that which we diſtinguiſh by the name of the vampyre, or blood-ſucker ; it is alſo poſſible, that this figure of Seba's is falſe, or at leaſt that this deformed noſe is only a monſtrous accidental variety; though of theſe deformities there may be found permanent examples in ſome other ſpecies of bats. By time alone will theſe obſcurities be removed.

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* An American animal called the Great American Bat, or Flying Dog of New Spain.

Both the rouſſette and rougette are in the cabinet of the King of France; and it is to the iſland of Bourbon that we are indebted for them. They belong excluſively to the Old Continent; and in no part either of Africa or Aſia are they ſo numerous as the vampyre is in America. Theſe animals are larger, ſtronger, and perhaps more miſchievous than the vampyre. But it is by open force, and in the day as well as night, that they commit hoſtilities. Fowls and ſmall birds are the objects of their deſtructive fury; they even attack men, and wound their faces; but no traveller has accuſed them of ſucking the blood of men and animals while aſleep.

The ancients had but an imperfect knowledge of theſe winged quadrupeds, which may, indeed, be termed monſters; and it is probable, that from thoſe whimſical models of Nature, they received the idea of harpies. The wings, the teeth, the claws, the cruelty, the voracity; the naſtineſs, and all the deſtructive qualities, and noxious faculties of the harpies, bear no ſmall reſemblance to thoſe of the Ternat bat. Herodotus ſeems to have denoted them, when he mentions that there were large bats which greatly incommoded the men employed in collecting caſſia round the marſhes of Aſia, and that, to ſhield themſelves from the dangerous bites of theſe animals, there was a neceſſity for covering the body and face with leather. Strabo ſpeaks of very large bats in Meſopotamia, whoſe fleſh was palatable. Among the moderns, theſe large bats have been mentioned, though in vague terms, by Albertus, Iſidorus, and Scaliger. With more preciſion have they been treated of by Linſcot, Nicholas Matthias, and Francis Pyrard; Oliger Jacobeus has given a ſhort deſcription of them with a figure; and laſtly, in Seba, and in Edwards, we find well-executed deſcriptions and figures, which correſpond with our own.

The Ternat Bats are animals carnivorous, voracious, and poſſeſſed of an appetite for every thing that offers. In a dearth of fleſh or fiſh, they feed on vegetables and fruits of every kind. They are fond of the juice of the palm-tree, and it is eaſy to take them by placing near their retreats veſſels filled with palm-tree water, or any other fermented liquor, with which they are ſure to intoxicate themſelves. They faſten to, and ſuſpend themſelves from. trees with their claws. They uſually fly in flocks, and more ſo by night than by day. Places which are much frequented they ſhun, and their favourite reſidence is in the deſerted parts of iſlands. To copulation they are ſtrongly inclined. In the male the ſex is very apparent, and not concealed in a ſcabbard, like that of quadrupeds, but extends forwards from the body. nearly as it does in the ape. In the female the ſex is equally conſpicuous ; ſhe has but two nipples, and thoſe ſituated upon the breaſt ; ſhe produces more than once a year, but the number at each time is but ſmall. Their fleſh, when young, is not unpalatable ; the Indians * are fond of it, and compare its flavour to that of the partridge or the rabbit.

The American travellers unanimouſly agree, that the great bats of the new continent ſuck the blood both of men and animals while they are aſleep, and without awaking them. Of this ſingular fact, no mention is made by any of the Aſiatic or African travellers, who ſpeak of the Ternat bats. Their ſilence, nevertheleſs, is no adequate proof of their being guiltleſs,

eſpecially

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* The Moors and Malayans are moſt certainly meant, as the Indians neither eat nor kill any animal. Lett. M. La Nux.

eſpecially as they have ſo many other reſemblances to thoſe great bats, which we denominated vampyres. I have, therefore, thought it worth while to examine how it is poſſible that theſe animals ſhould ſuck the blood of a perſon aſleep, without cauſing a pain ſo ſenſible as to awake him. Were they to cut the fleſh with their teeth, which are as large as thoſe of other quadrupeds of the ſame ſize, the pain of the bite would effectually rouſe any of the human ſpecies, however ſoundly aſleep; and the repoſe of animals is more eaſily diſturbed than that of man. Thus it would alſo be, were they to inflict the wound with their claws. With their tongue only, then, is it poſſible for them to make ſuch minute apertures in the ſkin, as to imbibe the blood through them, and to open the veins without cauſing an acute pain.

The tongue of the vampyre I have not had an opportunity to obſerve; but thoſe of ſeveral Ternat bats which M. Daubenton attentively examined, ſeemed to indicate the poſſibility of the fact; their tongues were ſharp, and full of prickles directed backward; and it appears that theſe prickles, or points, from their exceeding minuteneſs, may be inſinuated into the pores of the ſkin, and may penetrate them ſo deep as to command a flow of the blood, by the continued ſuction of the tongue. But it is needleſs to reaſon upon a fact of which all the circumſtances are imperfectly known to us, and of which ſome are perhaps exaggerated, or erroneouſly related.

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## SUPPLEMENT.

AMONG other remarks which I received from the ingenious M. de la Nux upon this work, after its firſt publication, were the following reſpecting theſe animals. He ſays, in general terms, that the ſize and number of the Great Ternat Bats are both exaggerated; that inſtead of attacking men they invariably endeavour to get from them, conſequently never bite but when taken, or defending themſelves, which they do then moſt dreadfully; and that inſtead of being ferocious animals, they are perfectly gentle in their diſpoſitions. Speaking from his own experience, he ſays, both the great and ſmall ternat bats are natives of Bourbon, the iſles of France, and Madagaſcar, in the former of which he had reſided upwards of fifty years; when he firſt arrived there they were very numerous in many places where they are at this time not to be found, and for theſe reaſons, that the foreſts were then adjacent to them, which had been cleared away by the ſettlements, and that it is only in foreſts they can ſubſiſt; beſides, they bring forth but once a year, and are hunted, both by whites and negroes, for the ſake of their fleſh and greaſe. The females are in ſeaſon about the month of May, and produce towards the end of September. They appear to come to maturity in about eight months, ſince there are no ſmall ones to be ſeen after April or May, and the young are to be known from the old by their colours being more vivid: they become grey with age, but it is uncertain at what period; at this time their fleſh is very diſagreeable, and their fat alone, of which they have plenty during the ſummer, is eaten by the negroes. They never feed upon any kind of fleſh, but entirely on bananas, peaches, and other fruits and flowers of which theſe foreſts abound: they are exceedingly fond of the juices of certain umbellated flowers; and it is poſſibly for the purpoſe of ſucking the different ſpecies of them that they have ſuch a number of ſharp papillæ on their tongues. They never touch the ſkins of the mango, and probably becauſe it is reſinous. Some of them which have been caught, and kept alive, have been known to eat bread and ſugar-canes, but I believe, even in that ſtate, no kind of meat, either raw or prepared. There cannot be any thing to apprehend from theſe animals, either perſonally, or even for poultry, becauſe they are incapable of ſeizing upon the ſmalleſt bird, for if they come too near the ground they fall, and are then under the neceſſity of climbing up ſome elevated object before they can reſume their flight, and in this caſe they climb up the firſt thing they meet with, even though it ſhould be a man. The trail their bodies along, conſequently move very ſlow, and which is of itſelf ſufficient to prove their incapacity for ſeizing birds. Theſe animals, when going to take wing, cannot, like birds, dart at once into the air, but are obliged to beat their wings ſeveral times to fill them, and to releaſe their claws from what they have hold of, and even then the weight of their bodies frequently bears them to the ground; from this neceſſity of filling their wings they cannot take flight from any part of the tree, but are obliged to crawl to a part of a branch where they can act with perfect freedom. They are much alarmed at the firing of a gun, or at a peal of thunder; and if a large flock of them, reſting upon a tree, are ſurpriſed by either of thoſe reports, in their haſte to fly, numbers of them fall to the ground, not having ſufficient air in their wings; in this caſe they haſten to climb up the firſt thing they meet with; therefore, let us only ſuppoſe that object to be a traveller unacquainted with theſe animals, he would naturally be ſtruck with terror at being ſuddenly ſurrounded with a number of creatures of ſuch an ugly form and aſpect, and eſpecially when they begin to climb up his body; he would of courſe endeavour to extricate himſelf from them, and they, in turn, finding themſelves roughly treated, might begin to ſcratch and bite. Would not a circumſtance of this nature be ſufficient to give riſe to the idea that theſe bats were ferocious animals, which ruſhed upon men for the purpoſe of wounding and deſtroying them? when the whole would ariſe from the rencounter of different animals mutually afraid of each other. They are led to reſide in foreſts by inſtinct, it being there only they can procure ſubſiſtence, and not from any ſavage diſpoſition; beſides this, neither of theſe bats ever light upon carrion, nor do they eat upon the ground, but generally in an hanging poſture, and which appears to be neceſſary when they feed, all of which is ſurely enough to prove they are neither carnivorous, voracious, nor cruel animals; and as their flight is both heavy and noiſy, there cannot remain a doubt of their being a ſpecies very diſtant from the vampyre. The great Ternat bats have alſo been charged with feeding on fiſh, becauſe they ſometimes fly very near the water; but this is equally untrue, for they certainly live entirely on vegetables, and it is ſolely for the purpoſe of waſhing themſelves that they go ſo near the water, for they are an exceeding clean animal, and of the numbers I have killed I never found dirt upon any of them.

When near, the great Ternat bat is certainly rather diſguſtful, and all his motions are diſagreeable, and it is only when perched on a tree that his natural deformity is concealed; he then hangs with his head downward, his wings are folded cloſe to his ſides, his vibrating wings, which are his greateſt defects, as well as hind paws, by which he is ſuſpended, are concealed, and there then appears only a round plump body, covered with a clean, ſmooth brown hair, terminated with an head rather agreeable than otherwiſe. This is the only attitude in which they take repoſe, and frequently remain in it the greateſt part of the day, and in which they are ſeen to the greateſt advantage, eſpecially if they are at the height of 40 or 50 feet, and about 100 feet diſtant. The great Ternat bat is always placed for ſhew with his wings extended, by which means he is ſeen to the greateſt diſadvantage. The repreſentation given of him in your work is not exact, as they never reſt with their four feet on the ground. Both ſpecies are excellent food, and have never been known to produce any bad effects, although frequently eaten to exceſs; nor is that in the leaſt ſurpriſing when we conſider they feed entirely on ripe fruits, the juices, flowers, and according to Herodotus, the exudations of trees."

## THE SENEGAL BAT.

The Senegal Bat * *(fig.* 119.*)* or as it is called by ſome, the Marmotte Volante, is of a dark brown colour upon its head and back, with a light mixture, which increaſing under the belly, renders that conſiderably paler; the tail, as well as the membrane of the wings, are quite black. That which I ſaw, and had been brought from Senegal, from M. Adamſon, was not more than four inches in length, and his wings extended to about 21 inches; his head was long, ears ſhort, and his noſe rather pointed; he had 20 teeth in the whole, two inciſive, two canine, and eight grinders in the upper jaw and ſix inciſive and two canine in the under.

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* Of this and the two following Mr. Pennant's Synopſis contains very accurate deſcriptions.

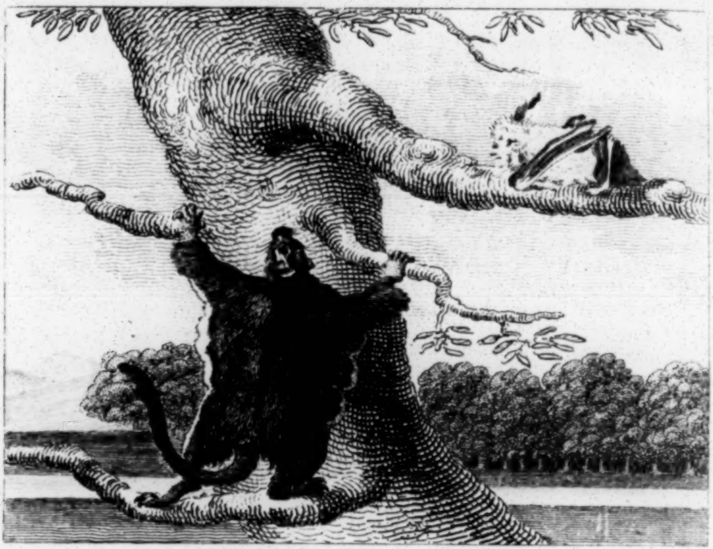
## THE BULL-DOG BAT.

THE Bull-Dog Bat, (*fig.* 118.) has a ſhort thick noſe, and large broad ears, which bent forward. The greateſt part of its body is a dark aſh-colour; the middle of its belly is brown, and its cheſt and throat a clear aſh, without any mixture; the tail and membrane of the wings are nearly black, from the latter of which there comes a part of the tail, compoſed of five falſe vertebræ. In has 26 teeth, two inciſive, and two canine, in each jaw;

eight grinders in the upper, and ten in the lower; it is not more than two inches in length, meaſuring from the top of the noſe, nor does its wings extend to quite ten.

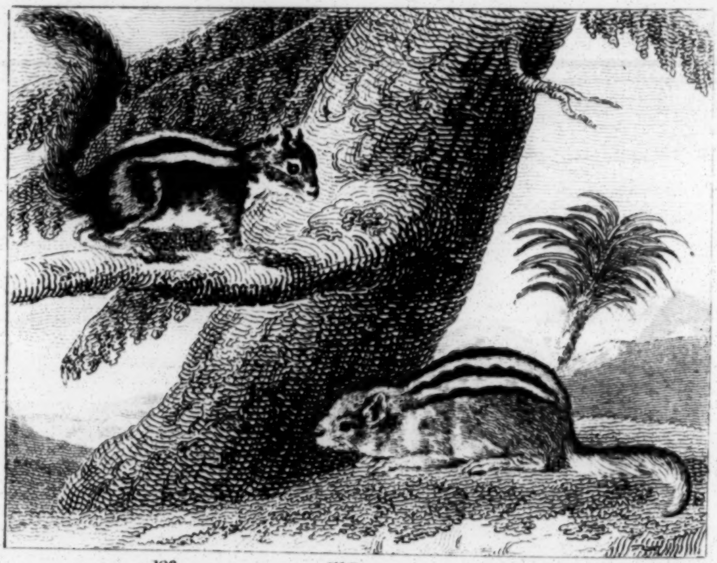
### THE BEARDED BAT.

The head of this bat *(fig. 120.)* is very peculiarly conſtructed; the noſe is ſunk in the front, and, contrary to all other animals, it has not its noſtrils divided by a partition, but are placed on the ſides of a kind of gutter entirely open from one end to the other; the exterior edges of them join above the upper lip, forming a cavity from thence to the front, where it terminates with a deep hole covered all round with long hairs. It has long narrow ears; the hair on the top and hind part of the head, along the neck, back, tail, and ſhoulders, is of a reddiſh brown, and all the remainder is of a yellowiſh white; the membrane of the wings and tail have a kind of mixture of black and reddiſh brown, and its claws are yellow. Its body is about an inch and an half long, and its wings extend to about ſeven.



121 FIG. 120

*Polatouch* *Bearded Bat*



123 FIG. 122

*Palmist* *Swiss Squirrel*

## THE STRIPED BAT.

THIS Bat is very ſmall, has a ſhort noſe and broad ears, bending forward; it is of a whitiſh-yellow colour, excepting under its throat, breaſt, and belly, which is a light blue, with a yellow ſhade; the tail, and membrane of the wings, are a mixture of yellow and brown.

## THE POLATOUCH.

I HAVE choſen to continue the name this animal bore in Ruſſia, its native country, rather than adopt thoſe vague and uncertain ones ſince appropriated to it, ſuch as, the Flying-rat, Flying-ſquirrel, &c.

The Polatouch (*fig.* 121.) reſembles but in a few particulars either the ſquirrel, loir, or rat. To the ſquirrel it has no affinity but in the largeneſs of the eyes, and form of the tail, the latter, however, is neither ſo long, nor buſhy. He is more like the loir by the ſhape of his body, his ſhort and naked ears, and the hairs of his tail, which are of the ſame form and length; but he is not like him, ſubject to numbneſs in cold weather. The polatouch is a different ſpecies from the ſquirrel, rat, or dormouſe, though he participates of the nature of all three. M. Klein gave the firſt exact deſcription of this animal, in the Philoſophical Tranſactions, 1733; he was, however, known long before that time. He is found in the northern parts both of the ancient and New Continent *. He is more common in America than in Europe, where he is ſeldom ſeen, except in Lithuania and Ruſſia. This little animal dwells upon trees, like the ſquirrel; he goes from branch to branch, and when he leaps from one tree to another, his looſe ſkin ſtretches forward by his fore-legs, and backward by his hind-ones; his ſkin thus ſtretched and drawn outwardly more than an inch, increaſes the ſurface of his body, without adding to its weight, and conſequently retards the acceleration

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* The Hurons of Canada have three different ſpecies of ſquirrels. The Flying-ſquirrels are frequent in North America, but they have been lately found in Poland.

ration of his fall, ſo that he is enabled to reach in one leap a great diſtance. This motion is not like the flight of a bird, nor the fluttering of a bat, both of which are made by ſtriking the air with repeated vibrations. It is one ſingle leap, cauſed by the firſt impulſion, the motion of which is prolonged, from the body of the animal preſenting to the air a larger ſurface, finds a greater reſiſtance, and falls more ſlowly. This ſingular extenſion of the ſkin is peculiar to the polatouch, and this characteriſtic is ſufficient to diſtinguiſh him from all other ſquirrels, rats, or dormice. But the moſt ſingular things in Nature are not unparalleled; there is another animal of the ſame kind, with a ſimilar ſkin, which is not only ſtretched from one leg to another, but from the head to the tail. This animal, whoſe figure and deſcription has been given by Seba, under the denomination of the flying-ſquirrel of Virginia, ſeems ſo different from the polatouch, as to conſtitute another ſpecies; though probably it may be only a ſimple variety, or an accidental and monſtrous production, for no traveller or naturaliſt makes mention of it. Seba is the only one who has ſeen him in the cabinet of Vincent; and I always miſtruſt deſcriptions of animals made in cabinets of curioſities, which are often disfigured to make them more extraordinary.

We have kept a long while the living polatouch. He has been well deſcribed by travellers, particularly Sagard, Theodat, John of Laet, Fernandes, Le Hontan, Denys, Cateſby, Dumont, Le Page du Pratz, &c. and Meſſrs. Klein, Seba, and Edwards, have given exact deſcriptions of him, with his figure. What we have ſeen of this animal agrees with their relations. He is commonly ſmaller than a ſquirrel. That which we had weighed little more than two ounces, about the weight of a middling ſized bat, and the ſquirrel weighs eight or nine ounces. However, there are ſome of a greater ſize, ſince we have a ſkin of a polatouch much larger than common.

The polatouch has ſome analogy with the bat by this extenſion of the ſkin, which unites the fore and hind legs, and ſupports him in the air; he ſeems alſo to participate of his nature, for he is quiet and ſleepy in the day-time, having no activity but towards the evening. He is eaſily tamed, but ſoon offended, and muſt be kept in a cage, or faſtened with a ſmall chain; he feeds upon bread, fruits, ſeeds, and is remarkably fond of the buds and ſhoots of the birch and pine trees. He does not ſeek after nuts and almonds like a ſquirrel. He makes a bed of leaves, in which he buries himſelf, and ſleeps through the day, leaving it only in the night, or when preſſed by hunger. As he has little agility, he becomes eaſily the prey of martins, and other animals who climb up the trees, ſo that the ſpecies is not numerous, although they have commonly three or four young at a time.

## SUPPLEMENT.

IN the original work I remarked having ſeen the ſkin of a Polatouch larger than the common ſize, but the difference was very trifling, to one the Prince de Conde has ſince permitted me to examine, whoſe bulk was perfectly gigantic, compared with thoſe of Ruſſia or America, the latter never exceeding five inches in length, and this meaſured twenty-three. It was taken upon the Malabar coaſt, where they are very common, as well as in the Phillipine Iſlands, and other parts of India, where they are called taguans, or great flying ſquirrels; but notwithſtanding they reſemble the Polatouch in figure and the extenſion of their ſkin, yet I think they ought to be conſidered as various ſpecies; for among other differences, the tail of the taguan is round, and that of the common kind flat; the hair of the former's tail is alſo of a blackiſh brown, the face is quite black, the ſides of the head have a mixture of white hairs, and on the noſe and round the eyes, there are alſo ſome red ones; it has long brown hairs that cover the neck, the whole back is a mixture of black and white, the belly of a dirty white; the upper part of the extended ſkin is brown, and the under a greyiſh yellow, the legs black with a reddiſh ſhade, the tail brown, deepening by degrees until it becomes quite black at the end, the toes are black, and the claws hooked like thoſe of the cat, from which, and the reſemblance of the tail, it has been called by ſome the flying cat. M. de Voſmaër, in his Deſcription d'une Ecureuil Volant, gives a very particular account of both ſpecies, as does M. l'Abbé Prevoſt, and both of which perfectly coincide with the above.

At this time, March 17, 1775, I have one of the ſmall ſpecies alive; I keep it in a cage, with a box at the bottom filled with cotton, in which it covers itſelf all day, and only comes out at night to ſeek for food. Whenever it is ſorced to come out, it cries ſomewhat like a mouſe; its teeth are ſmall, but ſharp, and it bites violently; it can only be made to extend its wings by letting it fall from ſome height; and it is ſo very chilly, that I am aſtoniſhed how it preſerves itſelf in the northern climates, ſince it would very ſoon periſh, even in France, if it was not ſupplied with plenty of cotton to cover itſelf all over.

Of the Great Flying Squirrel M. de Voſmaër remarks, "The Great Flying Squirrel has a great affinity to the ſmaller ſpecies deſcribed by M. de Buffon; they both have the ſame kind of membranes, with which they ſupport themſelves in the air when they leap from tree to tree. Theſe animals were firſt mentioned by Valentine, who ſtates them to be found in the iſland of Gilolo, where they are called *flying civets*; he deſcribes them to have long tails, and ſays, when at reſt their wings are not to be ſeen; that they are very wild and fearful; that their heads are reddiſh, intermixed with grey, that their membranes are covered with hair, their teeth ſo ſtrong and ſharp that they would ſoon eſcape from a wooden cage; that they are ſometimes called *flying monkies*; and that they are alſo to be met with in the iſland of Ternat, where they were at firſt miſtaken for ſquirrels.

M. l'Abbé

M. l'Abbé Prevoſt ſays, it is alſo found in the Phillipine Iſlands, where it is called *taguan*; that he ſaw two females, the one at the Hague, whoſe body was a light cheſnut, rather darker on the back, and black towards the extremity of the tail; and that he had alſo ſeen two males in the Prince of Orange's cabinet, which were one foot five inches long in the body, and their tails one foot eight. The hind part of their heads, back, and the commencement of the tail are covered with long hairs, black at the bottom, and of a greyiſh white at the ends; the other part of the tail is black, and the hair is ſo diſpoſed as to make the tail have a round appearance, the checks are brown, and their throats, breaſts, and bellies are of a whitiſh grey. The membranes are the thinneſt in the middle where they are covered with cheſnut hairs, encreaſing in thickneſs towards the paws, and the colour growing darker until it is nearly black at the extremities.

## THE GREY SQUIRREL.

THIS animal is found in the northern parts of both continents. He is in ſhape like a common ſquirrel, and his external difference conſiſts in his being larger, and the colour of his hair not being red, but light, or deep grey; his ears are not ſo hairy towards the extremity as thoſe of our ſquirrels. Theſe differences, which are conſtant, ſeem ſufficient to conſtitute a particular ſpecies. Many authors think this ſpecies is different in Europe and America, and that the grey ſquirrels of the former are of the common kind, and that they change their colour with the ſeaſon in the northern climates. Without denying abſolutely this aſſertion, which does not ſeem ſufficiently proved, we look upon the grey ſquirrel of Europe and America as the ſame animal, and as a diſtinct ſpecies from common ſquirrels, who are found in the northern parts of both continents, being of the ſame ſize, and of a red, more or leſs bright according to the temperature of the country.

At the ſame time, other ſquirrels of a larger ſize, whoſe hair is grey, or ſomewhat black, in all ſeaſons, breed in the ſame latitude. Beſides, the fur of the grey ſquirrel is more fine and ſoft than that of our ſquirrels; we are, therefore, authoriſed to believe, though very near alike, they ought to be diſtinguiſhed as different ſpecies.

M. Regnard ſays affirmatively, that the grey ſquirrels of Lapland are the ſame animals as the French ſquirrels. This poſitive aſſertion is contradicted by others; M. Regnard has wrote excellent dramatic pieces, but he did not give a ſufficient application to Natural Hiſtory; nor did he continue long enough in Lapland to ſee the ſquirrels change their colour. It is true that ſome naturaliſts, and among them Linnæus, have ſaid, that in the north of Europe the hair of the ſquirrel changes colour in the winter. This may be true, for the hares, wolves, and weaſels, alſo change their colour in thoſe climates; but from red they grow white, not grey; and to give no other inſtance but that of the ſquirrel, Linnæus in the *Fauna Suecica*, ſays, *æſtate ruber, hieme incanus*, conſequently from red he becomes white; and we do not ſee why this author ſhould ſubſtitute for the word *incanus* that of *cinereus*, which is found in the laſt edition of the *Syſtema Naturæ*. M. Klein aſſures, on the contrary, that the ſquirrels in the vicinity of Dantzic, are red in the winter as well as in the ſummer, and that there are others frequently found in Poland grey and blackiſh, who do not change their colour any more than the red; theſe laſt alſo breed in Canada, and in all parts of North America; conſequently we may conſider the grey ſquirrel as an animal common to both continents, and of a different ſpecies from that of the common ſquirrel.

Beſides, we do not perceive that the ſquirrels who are very frequent in our foreſts unite in troops; we do not ſee them travel in companies, approach the waters, nor croſs rivers upon the bark of trees. Thus they differ from the grey ſquirrels, not only in ſize and colour but by natural habits; for although the navigations of the grey ſquirrels ſeem almoſt incredible, they are atteſted by ſo many witneſſes that we cannot deny the fact *.

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* The grey ſquirrels frequently remove their place of reſidence, and it not unoften happens that not one can be ſeen one winter where they were in multitudes the year before; they go in large bodies, and when they want to croſs a lake, or river, they ſeize a piece of the bark of a birch or lime, and drawing it to the edge of the water, get upon it, and truſt themſelves

Of all quadrupeds that are not domeſtic, the ſquirrel is, perhaps, the moſt ſubject to vary in ſhape and colour, and whoſe ſpecies has the greateſt number of others come near it. The white ſquirrel of Siberia ſeems to differ only in colour from our common ſquirrel. The black and the grey of America are, perhaps, only varieties of the grey ſquirrel. The ſquirrels of Barbary, Switzerland, and the palmiſt, are three ſpecies very much like each other.

We have very little information with regard to the grey ſquirrel. Fernandes ſays, that the grey or blackiſh ſquirrels of America dwell upon trees, particularly upon pines; that they feed upon fruits and ſeeds; that they provide proviſions for the winter, and heap it up in ſome hollow tree, where they retire during that ſeaſon, and where the female brings forth her young. The grey ſquirrel differs, then, from the others who make their neſts at the tops

themſelves to the hazard of the wind and waves, erecting their tails to ſerve the purpoſe of ſails; they ſometimes form a fleet of three or four thouſand, and if the wind proves too ſtrong a general ſhipwreck enſues, to the no ſmall emolument of the Laplander who may fortunately find their bodies on the ſhore, as, if they have not lain too long, their furs will prepare in the uſual manner; but if the winds are favourable they are certain to make their deſired port. *Oeuvres de M. Regnard, tom. i. p.* 163.

tops of trees like birds; yet we do not pretend to affirm that the blackiſh ſquirrel, mentioned by Fernandes, is the ſame as the grey ſquirrel of Virginia, or that both of them are the ſame as the grey ſquirrel of Europe; we only think it is probable, as theſe three animals are nearly of the ſame ſize, colour, and inhabit the ſame climates, are preciſely of a ſimilar form, and their ſkins being equally uſed in the furs, called the fur of the grey ſquirrel.

## THE PALMIST, THE SQUIRRELS OF BARBARY AND SWITZERLAND.

THE Palmiſt is about the ſize of a rat, or a ſmall ſquirrel; he lives upon the palm-trees, from which he takes his name. Some call him the palm-rat, and others the palm-tree ſquirrel; but as he is neither a rat nor a ſquirrel, we call him Palmiſt. (*fig.* 123.) His head is nearly the ſame form as that of the campagnol, and covered with rough hair. His long tail does not lie on the ground, like that of the rat, but he carries it erect vertically, without, however, throwing it down on his back like the ſquirrel; it is covered with hair longer than that of his body, but ſhorter than the hair of the tail of a ſquirrel. His back is variegated with white and brown ſtripes, which diſtinguiſh the palmiſt from all other animals, except the ſquirrels of Barbary and Switzerland. Theſe three animals are ſo much alike, that M. Ray thought they made but one ſpecies; but if we conſider that the palmiſt and the ſquirrel of Barbary are only found in the warm climates of the ancient continent, and that the ſquirrel of Switzerland, deſcribed by Liſter, Cateſby, and Edwards, is only to be met with in the cold and temperate regions of the new world, we muſt judge them to be different ſpecies. By a minute obſervation it is eaſy to perceive that the white and brown ſtripes of the Swiſs are diſpoſed differently from thoſe of the palmiſt, whoſe white ſtripes extend all along the back, while it is black or brown in the Swiſs; and this brown ſtripe in the latter is followed by a white ſtripe, in the ſame manner as the white ſtripe in the former is by a brown; beſides, the palmiſt has but three white ſtripes, while the Swiſs has four; he alſo brings down his tail on his back, which the palmiſt does not:

the latter dwells upon trees, and the Swiſs is an inhabitant of the earth; from which difference he is called the land ſquirrel. In fine, he is ſmaller than the palmiſt, conſequently there can be no doubt of their being two different ſpecies.

As for the ſquirrel of Barbary, as he is of the ſame continent and climate, of the ſame ſize, and nearly the ſame form as the palmiſt, they might be conſidered as varieties of the ſame ſpecies; yet in comparing the deſcription and figure of the ſquirrel of Barbary, given by Caius, and copied by Aldrovandus and Johnſon, with the deſcription given here of the palmiſt, and comparing afterwards the deſcription and figure of the ſquirrel of Barbary, given by Edwards, it is eaſy to diſcern that they are different animals. We have ſeen them all in the king's cabinet. The ſquirrel of Barbary has the head and forehead more round, the ears longer, and the tail more buſhy than the palmiſt; he is more like a ſquirrel than a rat, by the form of his head and body; and a palmiſt reſembles more a rat than a ſquirrel. The ſquirrel of Barbary has four white ſtripes, and the palmiſt has no more than three; the white ſtripe is on the palmiſt's back bone, but that on the ſquirrel of Barbary is brown and red. Theſe animals have very near the ſame habits and diſpoſitions as the common ſquirrel. Like him they feed upon fruit, and uſe their fore-paws in carrying it to the mouth ; they have the ſame voice and cry, the ſame inſtinct, and agility ; they are lively and tractable, eaſily tamed, and ſo fond of their habitations, that they never go out but for diverſion, and return ſpontaneouſly to their reſidence. They are both of a pretty figure ; their coats, which have white ſtripes, are more valuable than that of the ſquirrel ; their ſize is ſhorter, their body lighter, and their motions equally quick. The palmiſt, and the ſquirrel of Barbary, dwell on trees like the common ſquirrel, but the Swiſs lives upon the earth, and, like the field-mouſe, forms a retreat that the water cannot penetrate ; he is alſo leſs docile and leſs gentle than the two others ; he bites without mercy, except completely tamed, from which it appears he is more like a rat, or a field-mouſe, than a ſquirrel, by inſtinct and nature.

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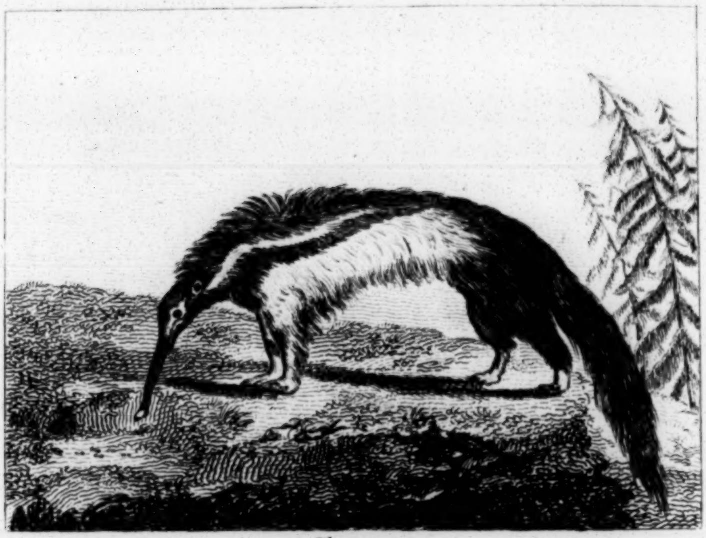

FIG. 124.

*Great Ant Eater.*

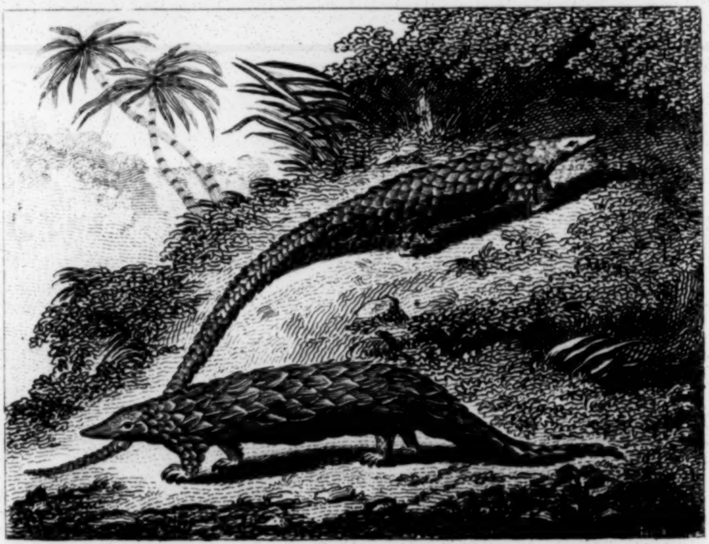

FIG. 125. 6

*Short taild Manis.* *Long taild Ditto.*

## THE ANT EATERS.

SOUTH America produces three animals with a long ſnout, a ſmall mouth, without teeth, and a large round tongue, with which they penetrate into the ants neſts, and draw them out again when covered with thoſe inſects, which are their principal food. The firſt of theſe ant-eaters is that which the Braſilians call Tamandua-Guacu, or Great Tamandua, to whom the French ſettled in America have given the name of Tamanoir. This animal *(fig.* 124.*)* is about three feet in length from the extremity of the muzzle to the origin of its tail; his head is fourteen or fifteen inches long, his muzzle ſtretches out to a great length; his tail is two feet and a half long, is covered with rough hair, more than a foot in length; his neck is ſhort, his head narrow, his eyes black and ſmall, his ears round, his tongue thin, more than two feet long, and which he folds up in his mouth. His legs are but one foot high;

the fore-legs are a little higher, and more ſlender than thoſe behind; he has round feet; the fore-feet are armed with four claws, the two middle ones are the longeſt; thoſe behind have five claws. The hair of his tail and body are black and white. Upon the tail they are diſpoſed in a bunch, which he turns up on his back, and covers it with his whole body, when he is inclined to ſleep, or wants to ſhelter himſelf from the rain or heat of the ſun. The long hair of his tail and of his body is not round in all its extent; it is flat towards the ends, and feels like dry graſs. He waves his tail frequently and haſtily when he is irritated, but hangs it down when he is compoſed, and ſweeps along the ground. The hair of the fore-part of his body is longer than that on the hind part. On the neck and back it is ſomewhat erect, and towards the tail, and on the flanks, cloſe to the ſkin; his fore-parts are variegated with white, and his hind-parts wholly black; he has alſo a white ſtripe on the breaſt, which extends on the ſides of the body, and terminates on the back, near the thighs; his hind-legs are almoſt black, and the fore-legs almoſt white, with a large black ſpot towards the middle. The Great Ant-eater moves ſo ſlow, that a man can eaſily overtake him in running;

ning; his feet ſeem leſs calculated to walk than to climb, and to faſten round bodies; for he holds ſo faſt a branch, or a ſtick, that it is not poſſible to force it from him.

The ſecond of theſe animals is called by the Americans only Tamandua, he is much ſmaller than the former, being not above eighteen inches from the extremities of the muzzle to the tail; his head is five inches long, his muzzle crooked, and long; his tail ten inches long, without hair at the end; his ears are erect, and about an inch long; his tongue is round, eight inches long, and placed in a ſort of hollow canal within the lower jaw; his legs are not above four inches in height, his feet are of the ſame form, and have the ſame number of claws as the Great Ant-Eater. He climbs and holds faſt a branch, or a ſtick, like the former, and his motions are equally ſlow. He cannot cover himſelf with his tail, the hair being ſhort, and the end almoſt bare. When he ſleeps he hides his head under his neck and fore-legs.

The third of theſe animals, the natives of Guiana call *ouatiriouaou*. He is ſtill ſmaller than the ſecond, being not above ſix or ſeven inches in length, from the extremities of the ſnout to the tail; his head is two inches long;

and his muzzle proportionably ſhort; his tail is ſeven inches in length, the hair curls downwards, and it is bare at the end; his tongue is narrow, long, and flat; his neck is very ſhort, his head big in proportion to the body; his eyes are placed low at a little diſtance from the corners of the mouth, his ears are ſmall, and hidden by the hair; his legs are but three inches long, the fore-feet have only two claws, the outward of which is much thicker and longer than the inward; the hind feet have four claws, the hair of the body is about nine inches long, ſmooth, and of a ſhining colour, diverſified with red and yellow; his feet are not made to walk, but to climb and to take hold of branches of trees, on which he hangs himſelf by the extremity of his tail.

We know of theſe kind of animals only the three ſpecies we have mentioned. M. Briſſon, after Seba, ſpeaks of a fourth ſpecies, under the denomination of the *long-eared ant-eater*, but we doubt its exiſtence; becauſe Seba has been guilty of more than one error in enumerating animals of this kind; he ſays expreſsly, "we "preſerve in our cabinet ſix ſpecies called "ant-eaters," and yet he gave only a deſcription of five; and amongſt them he reckoned the *yſquiepati*, or mouffette, an animal, not only of a ſpecies, but even of a genus, widely different from the ant-eaters, as he has teeth, and a flat ſhort tongue, like other quadrupeds, and comes very near the kind of weaſels. Out of theſe ſix ſpecies, pretended to be preſerved in the cabinet of Seba, four only remain, as the yſquiepati, which he reckoned the fifth, is no ant-eater, and the ſixth is not even mentioned, unleſs the author meant to comprehend among theſe animals the ſcaly lizard, which he does not intimate in his deſcriptions. The ſcaly lizard feeds upon ants; he has a long muzzle, a narrow mouth, without viſible teeth, and the tongue round; characteriſtics which he has in common with ant-eaters; but he is different from all other quadrupeds, by having the body covered with thick ſcales inſtead of hair. Beſides, this animal belongs to the hotteſt climates of the old continent, and the ant-eaters, whoſe bodies are covered with hair, are found only in the ſouthern parts of the new world. There are then no more than four ſpecies inſtead of ſix, mentioned by Seba, and out of theſe four there is but one ſpecies diſcernible by its deſcription; which is our third or ſmalleſt ant-eater, to whom Seba allows but one claw to each fore-foot, though he has two. The three others are ſo imperfectly deſcribed, that they cannot be traced to their true ſpecies. One may judge by this of the credit which Seba's voluminous book deſerves. The animal which he calls *tamandua murmecophage* of America, and the figure of which he has given *, cannot be compared with one of the three we are now treating of, it is ſufficient to be convinced of his error by reading his deſcription. The ſecond which he terms *tamandua-guacu* of Braſil, or the *bear ant-eater*, is deſcribed in a vague, equivocal manner; yet I am inclined to think with M. Klein and Linnæus, that he meant the true tamandua-guacu, or great ant-eater, but it is ſo badly deſcribed, and ſo imperfectly repreſented, that Linnæus has comprehended, in one ſpecies, the firſt and ſecond of Seba's animals. M. Briſſon conſidered the laſt as a particular ſpecies, but I do not believe his eſtabliſhment of this ſpecies better founded than his criticiſm on M. Klein, for having confounded it with that of the great ant-eater. The only juſt reproach M. Klein has incurred, is to have added to the good deſcription he has given of this animal, the erroneous indications of Seba. In fine, the third of theſe animals, whoſe figure is given in that work, is ſo badly deſcribed, that I cannot perſuade myſelf, notwithſtanding the reſpect I have for Linnæus and Briſſon's authority, this animal from Seba's deſcription and figure can be the middle ant-eater; I only wiſh that his deſcription may be attended to in order to judge of its fallacy. Theſe diſcuſſions, although tedious and diſagreeable, cannot be avoided in a Natural Hiſtory. Before we write upon a ſubject very little known, we muſt, as much as poſſible, remove all obſcurities, and point out the numberleſs errors before we can come to the truth. The reſult of this criticiſm is a proof that three ſpecies of ant-eaters really exiſt, namely the *tamanoir*, the *tamandua*, and the *ouatiriouaou*, and that the fourth called the *long-eared ant-eaters*, mentioned by M. Briſſon, is doubtful, as well as the other ſpecies indicated by Seba. We have ſeen the firſt and laſt with their ſkins, in the king's cabinet; and they are certainly very different from each other. We have not ſeen the tamandua, but have deſcribed it, after Piſo and Marcgrave, the only authors that ought to be conſulted upon this animal, as all others have only copied them. The tamandua, and the ſmall ant-eater have the extremities of their tails bare, with which they hang on the branches of trees, and when they perceive hollows, they put their tongues within, and draw them inſtantly back in their mouths, to ſwallow the inſects which they have gathered.

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* Seba, tom. I. p. 60, tab. 37. fig. 2.

Theſe three animals, ſo different in ſize and proportions of the body, have many things in common, both as to conformation and inſtinct. All feed upon ants, and put their tongues into honey, and other liquid and viſcous ſubſtances; they gather quickly crumbs of bread and ſmall pieces of meat; they are eaſily tamed; they can ſubſiſt a long while without food; they do not ſwallow all the liquor which they take into their mouths, on part returning through their noſtrils; they commonly ſleep in the day-time, and change their ſtation in the night; they go ſo ſlowly that a man may overtake them eaſily whilſt running in open ground. The ſavages eat their fleſh, but which has an unſavoury taſte.

The great ant-eater looks, at a diſtance, like a fox, and for that reaſon ſome travellers call him the American fox; he is ſtrong enough to defend himſelf againſt a large dog, and even the jaguar. When attacked he at firſt fights ſtanding on his hind legs, like the bear, and makes uſe of his fore claws, which are powerful weapons; afterwards he lies down on his back, and uſes all four feet, and in that ſituation he is almoſt invincible, and fights with obſtinacy till the laſt extremity; even after he has put to death his adverſary he keeps hold of him a long while. He maintains the fight longer than moſt animals, from being covered with long buſhy hair and a very thick ſkin, beſides his fleſh is remarkably hard, and he ſeldom loſes his life in theſe engagements.

The three ant-eaters are natives of the hotteſt climates of America, are found in Braſil, Guiana, the country of the Amazons, &c. but they are not met with in Canada, or in the northern regions of the new world, they conſequently do not belong to the ancient continent; yet Kolbe and Deſmarchais have ſtated theſe animals to live in Africa, but they ſeem to have confounded the ſcaly lizard with the ant-eaters. Perhaps this miſtake is in conſequence of a paſſage of Marcgrave, which ſays, "*Tamandua-guacu Braſilienſibus, congenſibus (ubi et frequens eſt) umbulu dictus*;" but Marcgrave certainly never ſaw this animal in Africa, ſince he confeſſes that he had ſeen only his ſkin in America. Deſmarchais only ſays that the great ant-eater is found in Africa as well as America, but he adds no circumſtance to prove this fact. In regard to Kolbe's atteſtation, we reckon it nothing, for a man who had ſeen at the Cape of Good Hope, elks and lynxes, like thoſe of Pruſſia, might alſo ſee the ant-eaters in the ſame climate. But they are not mentioned by any authors among the animals of Aſia or Africa, while all the travellers, and moſt of the hiſtorians, of America, make a particular mention of them. De Lery, de Laët, Father d'Abbeville, Maffée, Faber, Nieremberg, and M. de la Condamine, agree with Piſo and Barrere, in declaring that the ant-eaters are peculiar to the warm countries of America; thus we cannot doubt that Deſmarchais and Kolbe were miſtaken, and that theſe three ſpecies of animals do not exiſt in the ancient continent.

## SUPPLEMENT.

I HAVE received from M. Maudhuit, reſiding at Guiana, an ant-eater in excellent condition, which appears to be of the ſame ſpecies before deſcribed, differing ſomewhat in the length of the muzzle and the toes.

M. de la Borde has alſo tranſmitted ſeveral particulars, he ſays, "There are two ſpecies of ant-eaters which inhabit the woods of Guiana, the one larger than the other; they run very ſlow, and when they ſwim acroſs large rivers, which is a common practice, it is eaſy to knock them on the head with a ſtick; but in the woods it is neceſſary to uſe muſkets, for the dogs refuſe to hunt them. The great ant-eater tears up the neſts of wood-lice, which he eaſily diſcovers; he is a dangerous animal to encounter, as he gives moſt ſevere wounds with his claws, with which he ſucceſsfully defends himſelf againſt the moſt fierce animals of this continent, ſuch as the jaguars, cougars, &c. and with which he alſo kills many dogs, who are therefore afraid of him. He is ſaid to feed on ants, for which his tongue appears well calculated, but I found in the ſtomach of one a great number of wood-lice, which had juſt been ſwallowed. The females bring forth in the holes of trees, and have one at a time, and at thoſe periods they will even attack men. The ſavages at Cayenne eat the fleſh, although it is black and unſavory; their ſkins are thick and hard; they do not attain their full ſize before they are four years old; and the whole of their reſpiration is performed through their noſtrils. The ſmaller one has whitiſh hair, about two inches long; it has no teeth, but its claws are very long; this, as well as the former, feeds during the night; the female alſo has but one at a time, and they perfectly reſemble each other, but the latter is more ſcarce to be met with than the former."

This gentleman ſent me alſo the following remarks upon our third ſpecies. "It has bright hair, rather of a golden colour; it feeds upon ants, which adhere to its tongue; it is not bigger than a ſquirrel, runs very ſlow, and is eaſily taken; it fixes itſelf ſo faſt to a ſtick or branch that in that manner it may be carried to any diſtance, and thus fixed they are frequently found; theſe, like the former-deſcribed ant-eaters, bring forth but one at a time, in the holes of trees, and feed alſo in the night; they are not by any means ſcarce, though it is difficult to diſtinguiſh them on the trees."

## THE LONG AND THE SHORT-TAILED MANIS.

THESE animals are commonly known under the name of ſcaly lizards; we reject this denomination; 1ſt, becauſe it is a compound; 2dly, becauſe it is ambiguous, and applied to both ſpecies; 3dly, becauſe it is wrongly imagined; theſe animals being not only of another ſpecies, but even of a different claſs, than the lizards, which are oviparous reptiles, while the pangolin, and the phatagen, as they are called in their native countries of the eaſt, are viviparous quadrupeds.

All lizards are covered with a ſleek ſpeckled ſkin, in repreſentation of ſcales, but theſe animals have no ſcales on their throat, breaſt, or belly; the phatagen, or long-tailed manis, *(fig.* 126.*)* like other quadrupeds, has hair on all theſe under parts of the body; the pangolin, or ſhort-tailed manis, *(fig.* 125.*)* has nothing but a ſmooth ſkin without hair. The ſcales with which all the other parts of the bodies of theſe two animals are covered do not ſtick to the ſkin, they are only ſtrongly fixed at the lower parts, being moveable, like the quills of a porcupine, at the will of the animal; they raiſe theſe ſcales when exaſperated, and when particularly ſo, they roll themſelves up like a ball, reſembling the hedge-hog: theſe ſcales are ſo big, ſo hard, and ſo ſharp, that they repel all animals of prey; it is an offenſive armour which wounds while it reſiſts. The moſt cruel and voracious animals, as the tyger and the panther, make but uſeleſs efforts to devour theſe animals, they tread upon, and roll them about, but when they attempt to ſeize them, they receive ſevere wounds; they can neither deſtroy them by violence, nor bruiſe, or ſmother them with their weight. The fox is averſe to attacking the hedge-hog when rolled up, but he forces him to ſtretch himſelf by treading on, and ſqueezing him with all his weight, and as ſoon as his head appears, he ſeizes the ſnout, and thus ſecures him as prey. But of all quadrupeds, without even excepting the porcupine, the armour of the manis is the ſtrongeſt and moſt offenſive, and which animals, by contracting their bodies and preſenting their weapons, brave the fury of their enemies. When they contract themſelves, they do not take, like the hedge-hog, a globular figure, but form an oblong, their thick and long tail remaining outwardly and encircling their bodies; this exterior part, by which it would ſeem theſe animals could be ſeized, carries its own dedefence; it is covered with ſcales equally hard and ſharp as thoſe with which the body is cloathed, and as it is convex upwards and flat below, nearly in the form of half a pyramid, the ſides are covered with ſquare ſcales folding in a right angle, as thick and as cutting as the others, ſo that the tail ſeems to be ſtill more ſtrongly armed than the body, the under parts of which are unprovided with ſcales.

The ſhort-tailed manis is larger than the long-tailed kind; his fore-feet are covered with ſcales, but the feet of the latter, and part of his fore legs are cloathed with hair only. The former has alſo large ſcales, thicker, more convex, uniformly cutting, and not ſo cloſe as thoſe of the latter, which are armed with three ſharp points; he is alſo hairy upon the belly; the other has no hair on that part of his body, but between the ſcales which cover his back, ſome thick and long hair iſſues like the briſtles of a hog, which are not on the back of the long-tailed ſpecies. Theſe are all the eſſential differences which we have obſerved in the ſkins of both theſe animals, and which diſtinguiſh them from all other quadrupeds ſo much, that they have been looked upon as a ſpecies of monſters. From theſe general and conſtant differences, we dare affirm them to be two animals of diſtinct ſpecies. We have diſcovered their analogies and differences, not only by the inſpection of three of them, but alſo by comparing all which has been obſerved by travellers and naturaliſts.

The ſhort-tailed manis is from ſix to eight feet in length, his tail included, when he comes to his full growth; the tail is nearly as long as the body, though it appears ſhorter when the animal is young; the ſcales are not then ſo large nor ſo thick, and of a pale colour; the colour becomes deeper in the adult, and the ſcales acquire ſuch a hardneſs, as to reſiſt a muſket ball. Both theſe animals have ſome affinity with the great and middle ant-eater, for like them they feed on ants, have very long tongues, narrow mouths, without apparent teeth; their bodies and tails are alſo very long, and the claws of their feet very near of the ſame length and the ſame form, but they have five toes on each foot, while the great and middle ant-eaters have but four to their fore feet; theſe are covered with hair, the others are covered with ſcales; and beſides they are not natives of the ſame continent. The ant-eaters are found in America, and both the ſpecies of the manis belong to the Eaſt Indies and Africa, where the negroes call them Quogelo; they eat their fleſh, which they reckon a delicate wholeſome food, and uſe their ſcales for different purpoſes. They have nothing forbidding but their figure; they are gentle and innocent, feeding upon inſects only; they never run faſt, and cannot eſcape the purſuit of men, but in hiding themſelves in hollow rocks, or in holes, which they dig themſelves, and in which they breed. They are two extraordinary ſpecies, not numerous, and ſeemingly uſeleſs: their odd form ſeems to exiſt as an intermediate claſs betwixt the quadrupeds and reptiles.

## THE ARMADILLO.

WHEN we ſpeak of a quadruped, the very name ſeems to carry the idea of an animal covered with hair; as when we mention a bird, or fiſh, feathers and ſcales preſent themſelves to our imagination, and ſeem to be inſeparable attributes of thoſe beings: yet Nature, as if willing to deviate from this characteriſtic uniformity, and to elude our views, offers herſelf, contrary to our general ideas, in contradiction to our denominations and characters, and amazes more by her exceptions than by her laws. Quadrupeds, which we look upon as the firſt claſs of living nature, and who are, next to man, the moſt remarkable beings of this world, are not ſuperior in every thing, nor ſeparated by conſtant attributes. The firſt character which conſtitutes their names, and which conſiſts in having four feet, is common to lizards, frogs, &c. which differ from quadrupeds in ſo many other reſpects, ſo as to make them be conſidered as a ſeparate claſs. The ſecond general property, to produce young alive, is not peculiar to quadrupeds, ſince it is alſo common with cetaceous animals. And the third attribute, which ſeems the leſs equivocal, as it is the moſt apparent, that of being covered with hair, exiſts not in ſeveral ſpecies which cannot be excluded from the claſs of quadrupeds, ſince, with this characteriſtic excepted, they are like them in all other reſpects: and, as theſe exceptions of Nature are but gradations calculated to join in a general chain, the links of the moſt diſtant beings, we ſhould ſeize thoſe ſingular relations as they offer themſelves to our view. The armadillos, inſtead of hair, are covered, like turtles, craw-fiſh, &c. with a ſolid cruſt. The manis is armed with ſcales like fiſh; the porcupine carries a ſort of prickly feathers, the quill of which is like that of the birds. Thus in the claſs of quadrupeds, and in the moſt conſtant characteriſtic of theſe animals, that of being covered with hairs, Nature varies in bringing them nearer the three different claſſes of birds, fiſhes, and the cruſtaceous kinds. We muſt be cautious then in judging of the nature of beings by one ſingle character, as that would always lead us into errors; two or three characters, even though general, are often inſufficient, and it is only, as we have often repeated, by the union of all the attributes, and by enumerating all the characters, that we can judge of the eſſential qualities of the productions of Nature. A good deſcription, without definitions, an expoſition more exact on the differences than the analogies, a particular attention to exceptions and almoſt imperceptible gradations, are the true rules, and I dare aſſert, the only means of eſtimating nature. If the time loſt in forming definitions had been employed in making good deſcriptions, we ſhould not at this day have found Natural Hiſtory in its infancy; we ſhould have had leſs trouble to take off their baubles, to diſentangle her from her ſwaddling clothes, and perhaps have anticipated her ſlow diſcoveries, for we ſhould have written more for ſcience, and leſs againſt error.

But to come back to our ſubject; we muſt acknowledge the exiſtence of ſeveral ſpecies of animals which are not covered with hair, among the viviparous quadrupeds. Armadillos only form a whole genus, in which may be reckoned many diſtinct ſpecies, all of whom are, however, covered with a cruſt, reſembling bone; it covers the head, neck, back, flanks, rump, and the tail, to the very extremity. This cruſt is covered with a thin ſkin, ſleek and tranſparent: the only parts that are not ſheltered by this buckler are the throat, breaſt, and belly, which have a white grainy ſkin, like that of a plucked fowl; by inſpecting theſe parts with attention we perceive the appearance of ſcales of the ſame ſubſtance as the cruſt; the ſkin of theſe animals, even in the places where it is moſt ſoft, is then inclined to become oſſeous, but the oſſification is only realized on the ſuperior and external parts of the body. This cruſt is not in one piece, like that of the turtle, but conſiſts of ſeveral bands, joined to each other by membranes, which allow this armour a degree of motion. The number of theſe bands does not depend, as might be imagined, on the age of the animal. The young armadillos, and the adults, have the ſame number of ſtripes, of which we have been convinced by comparing them ; and though we cannot be certain that all theſe animals do not intermix and produce promiſcuouſly, it is at leaſt very probable, ſince the difference in the number of theſe moveable bands is conſtant, that they are really diſtinct ſpecies, or at leaſt laſting varieties, produced by the influence of various climates. In this uncertainty, which time alone can remove, we have thought proper to mention all the armadillos under one head, enumerating each of them as if they were, in fact, ſo many different ſpecies.

Father d'Abbeville ſeems to be the firſt who has diſtinguiſhed them by different names or epithets, and which have been adopted, for the moſt part, by the authors who have written after him. He has indicated clearly ſix ſpecies of them: firſt, *tatououaſſo*, or as we call it, twelve-banded armadillo ; 2. the *tatouette*, or eight-banded ; 3. the *encuberto* of Marcgrave, or ſix-banded ; 4. the *tatua-apara*, or three-banded; 5. the *cinquinçon*, or eighteen-banded; 6. *cachichame*, or nineteen-banded. Other travellers have confounded the ſpecies; but we have borrowed only the deſcription of the *apar* and the *cinquinçon*, having ſeen the other four.

All, except the *cinquinçon* have two long bucklers, one at the ſhoulders, and another on the rump; they conſiſt each of one ſolid piece; but the cuiraſs, which is alſo bony, and covers the body, is tranverſally divided, and parted into more or leſs moveable bands, parted from each other by a flexible ſkin. But the *cinquinçon* has but one buckler, and that on his ſhoulder, the rump being covered with moveable bands, like thoſe of the cuiraſs of the body. But we ſhall now proceed to a deſcription of them particularly.

## THE THREE-BANDED ARMADILLO.

THE firſt author who deſcribed this animal was Cluſius, and though his deſcription was from a drawing only, it is eaſily perceived to be the ſame ſpecies which Marcgrave calls the *tatua-apara*; but it is eaſy to perceive, by its three moveable ſtripes, and its ſhort tail, that it is the ſame animal; he has an oblong head, almoſt pyramidical; the ſnout ſharp, ſmall eyes, ſhort round ears, and the upper part of the head covered with a helmet of one piece; he has five claws to each foot; the two middle claws of the fore feet are very long, and the two lateral ſhorter; the fifth, which projects, is the leaſt. In the hind feet they are ſhorter and more even. The tail is but two inches in length, and is entirely covered with a cruſt; the body is a foot long, and above eight inches in its largeſt breadth. The cuiraſs, which covers it, is divided into four parts, and compoſed of three moveable tranverſe bands, which give the animal liberty to bend and contract his body in a round form; the ſkin between the ſtripes is very ſupple. The bucklers which cover the ſhoulders and rump are compoſed of five pieces, equally diſpoſed in five angles; the three moveable bands betwixt theſe two bucklers conſiſt of ſquare pieces, ornamented with little ſcales of a ſtraw colour. Marcgrave adds, that when he lies down to ſleep, or any perſon touches him, he brings his four feet together, lays his head under his belly, and bends himſelf ſo perfectly round that he looks more like a ſea-ſhell than a terreſtrial animal. This contraction is made with the aſſiſtance of two great muſcles on the ſides of his body, and the ſtrongeſt man finds it difficult to force him with his hands to ſtretch out. Piſo and Ray have added nothing to the deſcription of Marcgrave, but it is ſingular that Seba, who has given us a deſcription and figure of this animal evidently copied after Marcgrave, not only not mentions that author, but tells us, " that no naturaliſt has known this animal, that it is extremely ſcarce, and found in the moſt remote countries of the Eaſt-Indies," when in fact this very animal is well deſcribed by Marcgrave, and the ſpecies is well known, not indeed in the Eaſt-Indies, but in America, where it is very common. The only real difference between the deſcription of Seba, and that of Marcgrave is, that the latter gives the animal five claws to each foot, and Seba allows him but four, and yet they evidently ſpeak of the ſame animal.

Fabias Columna has given the deſcription and figure of an armadillo contracted into a ball, which ſeems to have had four moveable bands, but as this author was abſolutely unacquainted with the animal, whoſe ſkin or

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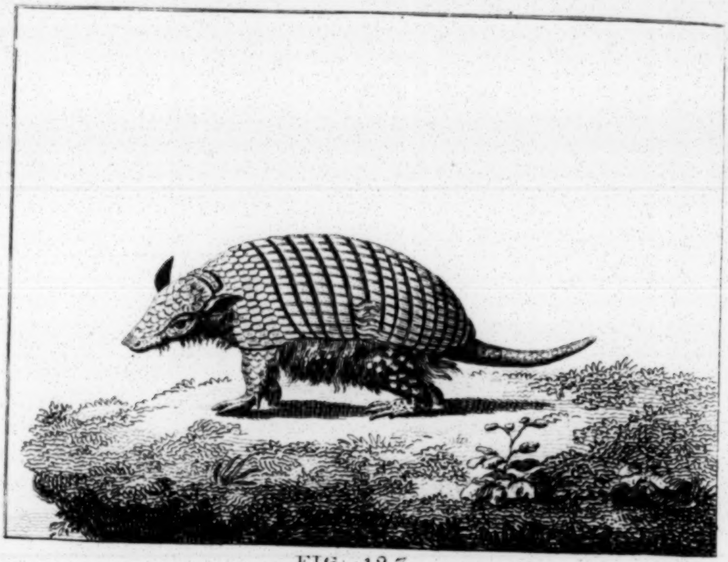

FIG. 127

*Six Banded Armadilla.*

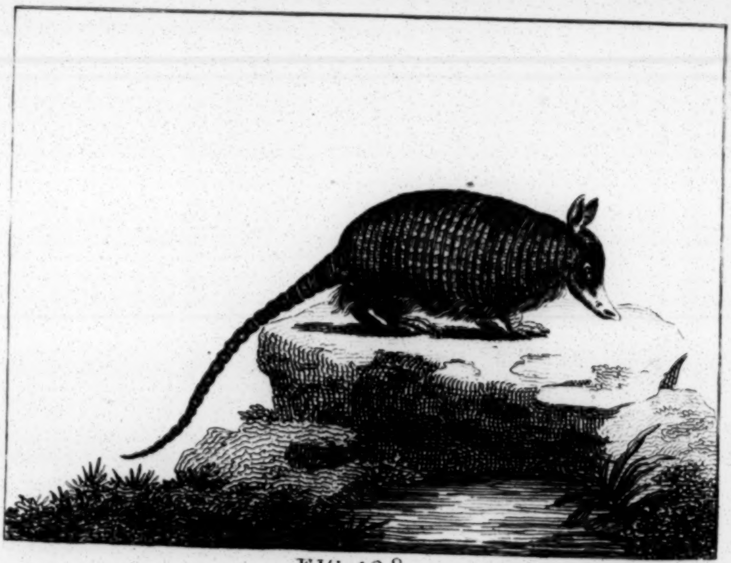

FIG. 128

*Long-tailed Armadilla.*

ſhell he has deſcribed, as he did not even know the name of the armadillo, though mentioned by Bellon fifty years before, but gave him a Greek name *(cheloniſeus)*; beſides, as he confeſſes, the ſkin had been paſted together, and wanted ſeveral pieces, we do not ſee ourſelves authorized to pronounce, as our modern nomenclators have done, that a ſpecies of armadillo, with four moveable bands, exiſts in Nature; and ſince theſe imperfect indications given in 1606, by Fabius Columna, no mention is made of it in the works of any naturaliſts; and, if he did really exiſt, he certainly would have been introduced into ſome cabinets, or been obſerved by travellers.

## THE SIX-BANDED.

THIS ſpecies *(fig. 127.)* is larger than the former; he has the upper part of the head, the neck, body, legs, and tail, covered with a very hard cruſt, compoſed of ſeveral large pieces, elegantly diſpoſed. He has a buckler on each ſhoulder, and another on the rump, each of which were in one piece ; there is beyond the buckler on the ſhoulders, and near the head, a moveable band, which enables the animal to bend his neck. The buckler on the ſhoulders is formed by five parallel rows, compoſed of pieces which repreſent five angles, with an oval in each ; the cuiraſs on the back, that is the part betwixt the two bucklers, is divided into ſix bands, which are united together, and to the bucklers, by ſeven joints of a ſupple ahd thick ſkin. Theſe bands are compoſed of large ſquare pieces ; from the ſkin of theſe joints ſome white hairs iſſue out, like thoſe on the breaſt and belly ; all theſe inferior parts are only covered by a grainy ſkin, and not by a cruſtaceous ſubſtance. The buckler on the rump has a border, the moſaic work of which is like that of the moveable bands, and the reſt conſiſts of pieces like thoſe of the bucklers of the ſhoulders. The cruſt of the head is long, broad, and conſiſts of one piece, to the moveable band on the neck. He has a ſharp muzzle, ſmall and hollow eyes, a narrow and ſharp tongue ; the ears are without hair, naked, ſhort, and brown, like the ſkin of the joints ; he has eighteen feet in each jaw, five claws to each foot, long, in a round form, and rather narrow ; the head and the ſnout are like thoſe of a pig, the tail is thick at its origin, diminiſhing gradually towards the extremity, where it is very ſlender and round. The colour of the body is a reddiſh yellow; the animal is commonly thick and fat, and the male has the ſexual organ very viſible; he digs into the ground with great facility with his ſnout and claws; he dwells in the day time under ground, and only goes out towards evening to ſeek for food; he drinks often, lives upon fruit, roots, inſects, and birds, when he can catch them.

## THE EIGHT BANDED.

THIS is not ſo large as the laſt; he has a ſmall head, a ſharp ſnout, the ears erect, and rather long, the tail proportionably longer, and the legs rather ſhort. He has ſmall black eyes, four toes on the fore-feet, and five in thoſe behind: the head is covered with a helmet, the ſhoulders and rump with ſhields, and the body with a cuiraſs compoſed of eight moveable bands connected together, and with the bucklers, by nine joints of a flexible ſkin; the tail has alſo a ſimilar number of bands. The colour of the cuiraſs on the back is iron grey, and on the flanks and tail of a light grey with ſpots of iron grey. The belly is covered with a whitiſh ſkin, grainy and hairy. The individual of this ſpecies, deſcribed by Marcgrave, had a head three inches long, the ears near two, the legs about three, the two middle toes of the fore-feet an inch; the body from the neck to the origin of the tail ſeven inches, and the tail nine inches in length; the bucklers had ſmall white ſpots; the moveable bands were marked by triangular figures; this cruſt was not hard, the ſmalleſt ſhot could penetrate through it, and kill the animal, whoſe fleſh is very white, and very good to eat.

## THE NINE BANDED.

NIEREMBERG has deſcribed this animal very imperfectly: Wormius and Grew have deſcribed him much better. The individual which Wormius mentioned was adult, and one of the largeſt of the ſpecies; that of Grew was younger and ſmaller. We ſhall only give their deſcriptions as far as they agree with our own ſpecimens. Beſides, it may be preſumed, that this nine-ſtriped armadillo is not really a diſtinct ſpecies from that who has no more than eight, and which he reſembles in every other reſpect. We have two eight-banded armadillos which are dried, and ſeem to be both males; we have ſeven or eight with nine bands, one well preſerved, which is a female, and the others are ſo dried up, that we could not diſcern the ſex. It is probable, therefore, that the eight-banded is the male, and the nine-banded the female. It is only a conjecture which I hazard here, becauſe we ſhall give in the following article the deſcription of two armadillos, one of which has more rows than the other upon the buckler on the rump, and yet they are ſo alike in every other reſpect, that one ſhould be inclined to think this difference ariſes only from that of the ſex; for it is not improbable, that greater numbers of theſe moveable bands may be neceſſary to facilitate the geſtation and delivery of the female. The head of the armadillo, the ſkin of which Wormius has deſcribed, was five inches from the end of the ſnout to the ears, and eighteen inches from the ears to the tail, which laſt was a foot in length, and compoſed of twelve rings. The head of that deſcribed by Grew was three inches, the body ſeven and a half, and the tail eleven; the proportions of the head and body agree, but the difference of the tail is too great; and it is probable that the tail of that deſcribed by Wormius had been broken, for it ſhould have exceeded a foot in length. As in this ſpecies the tail diminiſhes to the ſize of an awl, and is, at the ſame time, very brittle; few of the ſkins have the whole tail preſerved as that deſcribed by Grew.

## THE TWELVE BANDED.

THIS ſeems to be the largeſt of the ſpecies. He has a larger and broader head, and a ſnout not ſo ſharp as the others; his legs and feet are thicker, and his tail has not any cruſt; a particularity which is ſufficient to diſtinguiſh this ſpecies from all others. He has five toes on each foot, and twelve moveable bands.

The buckler on the ſhoulders is formed of five or ſix rows, each compoſed of large quadrangular pieces. The moveable bands are alſo formed of large pieces, almoſt ſquare; thoſe which compoſe the buckler on the rump are like thoſe on the ſhoulder. The helmet of the head conſiſts of large irregular pieces. Between the joints of the moveable bands, and in the other parts of the armour, there appear ſome hairs like the briſtles of a hog; there are alſo upon his breaſt, belly, legs, and tail, round ſcales, almoſt imperceptible, hard and poliſhed like the cruſt, and between which are ſmall tufts of hair. The pieces which compoſe the helmet, the two bucklers, and the cuiraſs, being proportionally larger, and leſs in number in this than in the other armadillos, evidently prove he is the largeſt of the kind. The head of that we took this deſcription from was ſeven inches long, and the body twenty-one.

## THE EIGHTEEN BANDED.

Mr. GREW firſt deſcribed this animal from a ſkin preſerved in the cabinet of the Royal Society in London. All the other armadillos have two bucklers, one on the ſhoulders, and the other on the rump, but this has but one, which is upon his ſhoulders. He is called the weaſel armadillo, becauſe his head is very near of the ſame form as a weaſel. By the deſcription of this animal given by Grew, it appears, that his body is about ten inches in length, his head three, and his tail five; the legs two or three inches in height; the forehead large and flat, ſmall eyes, and the ears an inch long, he has five toes on each foot, the three in the middle being the largeſt. The armour of the head and legs is compoſed of round ſcales, about a quarter of an inch diameter, that on the neck conſiſted of one piece, as did the buckler on the ſhoulders, compoſed of ſeveral rows of ſcales like thoſe of the armour; theſe rows on the buckler, in this ſpecies, as in all others, are continuous, and join by a ſymphyſis.

The reſt of the body, from the buckler on the ſhoulders to the tail, is covered with moveable bands, parted from each other by a ſupple membrane: theſe bands are eighteen in number; thoſe neareſt the ſhoulders are the largeſt, and are compoſed of ſmall ſquares. The poſterior are intermixed with round and ſquare pieces, and the extremity of the armour near the tail is of a parabolic figure. The firſt half of the tail is encircled with ſix rings, compoſed of ſmall ſquare pieces, and the lower part is covered with irregular ſcales. The breaſt, belly, and ears, are naked, as in the other ſpecies. It ſhould ſeem that, of all armadillos, this has the moſt facility to contract and roll himſelf up in a ball, by his moveable bands which extend to the tail.

Linnæus who muſt have ſeen the deſcriptions of Grew and Ray, who both agree with that we have given, has indicated this animal with one band only, inſtead of eighteen: founded on an evident miſtake, by having taken the *tatu ſeu armadillo Africanus* of Seba, for the *tatu muſtelinas* of Grew, which even according to the deſcriptions of theſe two authors, are very different from each other. It is doubtful whether the tatou of Seba exiſts, at leaſt as he has deſcribed him, but the animal given in Grew's deſcription is a real exiſting ſpecies.

All the armadillos come originally from America; they were unknown before the diſcovery of the New World. The ancients never mentioned them, and modern travellers all agree, that theſe animals are natives of Mexico, Braſil, Guiana, &c. and no one pretends to have ſeen this ſpecies in Aſia or Africa. Some have, indeed, confounded the ſcaly lizards of the Eaſt Indies with the armadillos of America. Others thought they exiſted on the weſtern coaſts of Africa, becauſe they have ſometimes been tranſported from Braſil into Guinea. Bellon, who wrote above two centuries ago, and is one of the firſt who has given a ſhort deſcription, with the figure of a tatou, from a ſkin which he had ſeen in Turkey, ſays, that it came from the new continent. Oviedo, De Lery, Gomara, Thevet, Ant. Herrera, Father d'Abbeville, François, Ximenes, Staddenius, Monard, Joſeph Acoſta, De Laët, and all the more recent authors mention theſe animals as natives of the ſouthern countries of America. Piſo is the only one who has pretended, without any authority, that the armadillos were found in the Eaſt Indies, as well as in America; and it is probable, that he has confounded the ſcaly lizards with the armadillos, eſpecially as they have been ſo called by the Spaniards; this error has been adopted by nomenclators, and thoſe who have given deſcriptions of cabinets; who have not only admitted the exiſtence of armadillos in the Eaſt Indies, but even in Africa, though none were ever in thoſe two parts of the world, except ſuch as have been tranſported from America.

The climate of theſe animals is not, therefore, equivocal; but it is more difficult to determine the relative bulk of each ſpecies. We have compared, with this view, great numbers which are preſerved in the king's, and many other cabinets. We have alſo compared the deſcriptions of all authors with thoſe of our own, without being able to aſcertain the fact. It appears that the twelve and ſix-banded are the largeſt, and that the three, eight, nine, and eighteen-banded are the ſmalleſt. In the larger ſpecies the cruſtaceous ſubſtance is harder and more ſolid; the pieces which compoſe it are larger, and in a ſmaller number; the moveable bands encroach leſs one upon the other; the fleſh, as well as the ſkin, is harder, and not ſo ſavoury. Piſo ſays, that the fleſh of the ſix-banded is not eatable; and Nieremberg affirms, that it is unwholeſome and pernicious. Barrere ſays, that the twelve-banded has a ſtrong ſmell of muſk; and all authors agree in praiſing the fleſh of the three-banded, and particularly that of the eight, which is as white, and equally good as the fleſh of a pig. They ſay alſo, that the ſmall ſpecies dwell in marſhy and low grounds, and that thoſe of the large ſpecies are found on dry and high lands only.

Theſe animals can all contract their bodies into a round form, with more or leſs facility. When they are contracted the defects of their armour is moſt viſible in thoſe who have it compoſed of the ſmalleſt number of pieces; the three-banded then ſhews two large voids betwixt the bucklers and the armour on the back. None of them can roll themſelves up in a ball ſo exact as that formed by the hedge-hog; when ſo contracted they repreſent the figure of a globe flattened at the two ends.

This ſingular cruſt, which covers them, is a bone compoſed of ſmall contiguous pieces, and being neither moveable nor jointed, except at the partitions of the bands, are united by a ſymphyſis, and may all be ſeparated from each other if put on the fire. When the animal is alive theſe ſmall pieces, both of the bucklers and the moveable bands yield to his motions, eſpecially when he contracts himſelf, otherwiſe he could not poſſibly roll himſelf up. Theſe pieces in different ſpecies are of different figures always as regularly diſpoſed as a moſaic work elegantly contrived. The pellicle which covers the cruſt is a tranſparent ſkin, and has the effect of a varniſh on the whole body ; this ſkin, when taken off, changes the relievo of this natural moſaic, and gives it a different appearance. This cruſtaceous covering is only a ſurface independent of the interior parts of the animal's body, his bones, and other organs, being compoſed like thoſe of other quadrupeds.

The armadillos, in general, are innocent, harmleſs animals, unleſs they can penetrate into gardens, where they will eat the melons, potatoes, pulſe, and roots. Though they originally belong to the hot climates of America, they live in temperate regions. I formerly ſaw one in Languedoc, which was fed in the houſe, and went about every where without doing any miſchief. They walk quickly, but they can neither leap, run, nor climb up trees, ſo that they cannot eſcape thoſe who purſue them ; they have then no reſource but to hide themſelves in their holes, or if at too great a diſtance from their habitations, to endeavour to dig one before they are overtaken, for which they want but a few inſtants, the mole not being more expert in digging the ground. Sometimes before they can get quite concealed they are caught by the tail, and then they make ſuch a ſtrong reſiſtance that the tail is often broke without bringing out the body; in order to take them without mutilation the burrow muſt be opened, then they are taken without any reſiſtance; when caught they roll themſelves up into a ball, and will not extend again unleſs they are placed near the fire. Hard as is their coat of mail, on being touched with the finger the animal receives ſo quick an impreſſion that he contracts inſtantaneouſly. When in deep burrows they are forced out by ſmoking them, or letting water run down the holes. It is ſaid that they remain under ground above three months in the year; be that as it may, it is certain that they never come out of their holes but in the night, when they ſeek for food. The armadillo is hunted with ſmall dogs, by whom he is ſoon overtaken; but before they have reached him he ſtops and contracts himſelf, in which condition he is ſeized, and carried off. If near the brink of a precipice, he eſcapes both dogs and hunters, for contracting he rolls himſelf down like a ball, without hurt or prejudice to his coat of mail.

Theſe animals are fat, and very prolific: the male has exterior ſigns of great generative faculties; the female brings forth, as it is ſaid, every four months, of courſe their ſpecies are very numerous. As they are good to eat they are hunted in different manners; they are eaſily taken with ſnares laid for them on the banks of rivers, and in marſhy grounds, which they inhabit by preference. They never go to any great diſtance from their burrows, which are very deep, and which they endeavour to reach whenever they are alarmed. It is pretended that they are not afraid of the bite of the rattle-ſnake, though it is as dangerous as that of the viper; nay, it is aſſerted, that they live in peace with theſe reptiles, which are often found in their holes. The ſavages make different uſes of their cruſts; they paint them with divers colours, and make baſkets, boxes, and other ſmall veſſels, of them. Monard, Ximenes, and many other writers, have attributed great medicinal properties to different parts of theſe animals; they aſſure us that the cruſtaceous covering, reduced into powder, and taken inwardly, even in a ſmall quantity, is a powerful ſudorific; that the bone of the hip, pulveriſed, cures the venereal diſeaſe; that the firſt bone of the tail, applied to the ear, cures deafneſs, &c. We give no credit to theſe extraordinary properties; the cruſt and bones of the armadillos being of the ſame nature as the bones of other animals. Such marvellous effects are never produced but by imaginary virtues.

## SUPPLEMENT.

I RECEIVED the drawing of a ſix-banded armadillo, taken from life, from M. de Séve, and with it a deſcription; in which, after ſtating that it correſponds pretty much with that we have given, obſerves, that the rows on the bucklers, and their pieces, vary in form and number: this animal was fourteen inches long, independent of the tail, which he ſuppoſed to be about ſix inches, as part of it was broken off; his head was rather more than three inches long, and his ears a little above one; on the broadeſt part of the body the cruſt meaſured ſix inches ſeven lines; the fore legs were two inches long, and his hind ones three.

M. de la Borde ſays, there are two ſpecies of armadillos at Guiana, the largeſt black and the other a greyiſh-brown; the former are ſo prolific as ſometimes to bring forth eight or ten at a litter; they reſide in very deep holes, and when any attempts are made to take them by digging, they penetrate farther in the earth, and almoſt perpendicularly; they only quit their holes in the night, and then for the purpoſe of ſeeking for food, which commonly conſiſts of worms, ants, and woodlice; their fleſh is of an excellent flavour, and reſembles that of a pig. The ſmall one has not more than four or five young at a time, and they are more hard to be taken; theſe ſometimes come out of their holes in the day, but never when it rains. The hunters know when they are in their holes by the number of flies which hover round; and when they begin to dig the animal digs alſo, and, by throwing the earth behind, ſo effectually cloſes up the holes that ſmoke cannot penetrate to them. I conceive the firſt of theſe animals to be that we have mentioned, as the twelve-banded, and the other the eight-banded armadillos.

Dr. W. Watſon has given a deſcription of an armadillo with nine bands, and a long tail, (*fig.* 128.) in the Philoſophical Tranſactions, where he ſays, This animal was brought from America, and kept alive in the houſe of Lord Southwell; but the drawing was not taken till after its death; he weighed ſeven pounds, and was not bigger than a common-ſized cat; while in poſſeſſion of Lord Southwell it grew conſiderably; it was fed with fleſh and milk, but would not eat grain or fruits. Thoſe by whom it was brought from America aſſerted, that it dug a hole for itſelf in the earth in which it lived.

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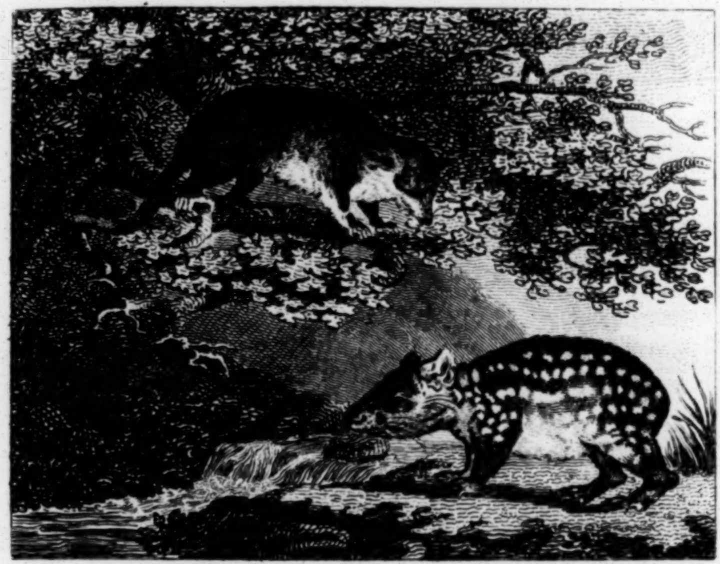
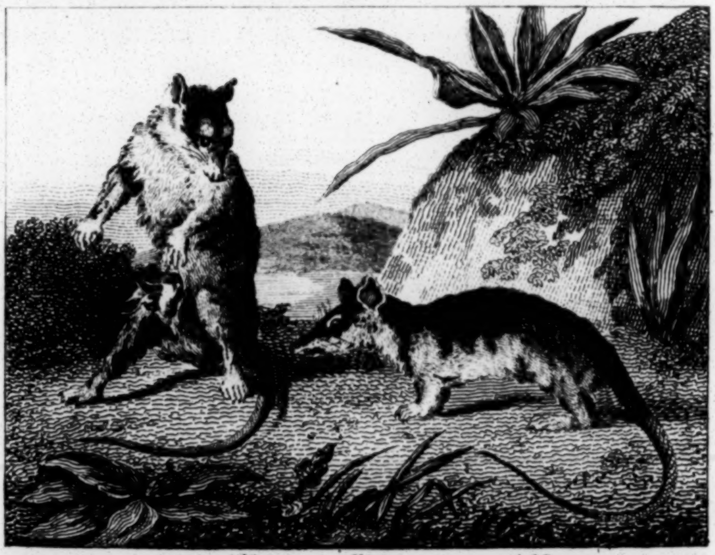
## THE PACA.

THE Paca *(fig. 129.)* is an animal of the new world, who digs himſelf a burrow like a rabbit, to whom he has often been compared, though there is ſcarce any likeneſs between them; he is much larger than the rabbit, or even the hare; his body is bigger and more compact; he has a round head and ſhort ſnout; he is fat and bulky, and is more like a pig in form, grunting, waddling, and manner of



132 FIG. 129

*Murine Opossum* *Paca*



131 FIG. 130

*Virginian Opossum Male and Female.*

[illegible] MA 62

of eating, for he does not uſe, like the rabbit, his fore feet to carry food to his mouth, but grubs up the earth like the hog to find ſubſiſtence. They inhabit the banks of rivers, and are found only in the damp and warm places of South America: their fleſh is very good to eat, and exceſſively fat; their ſkin is eaten as that of a pig. For theſe reaſons a perpetual war is carried on againſt theſe animals. Hunters find it very difficult to take them alive; and when they are ſurprized in their burrows, which have two openings, they defend themſelves, and bite with great rage and inveteracy. Their ſkins, though covered with ſhort and rough hair, make a fine fur, becauſe it is regularly ſpotted on the ſides. Theſe animals bring forth very often, and in abundance: men, and animals of prey, deſtroy great numbers of them, and yet the ſpecies is equally numerous: he is peculiar to South America, and is found no where in the old continent.

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## SUPPLEMENT.

OUR former deſcription of the Paca was taken from a young one which had not nearly come to its full growth. Since then I have had one ſent me, which was much bigger even when he arrived, and continued to grow while I kept him, namely from Auguſt 1774, to May 28, 1775. From the Sieur Trécourt I received an account of his natural habits, in which that gentleman ſays: "This animal remains perfectly quiet in the day, if he is provided with a wooden cage, or box, and has plenty of proviſions, to which he readily retires of himſelf while the day continues, but as ſoon as night comes on he becomes in a perpetual agitation to get out, and will even uſe violent efforts to effect that purpoſe if he is faſtened in; this he never attempts during the day, unleſs preſſed to make ſome natural evacuation, in which caſe he always gets to the fartheſt corner, having an averſion to any kind of dirt in the place he lives in; even his ſtraw he puſhes out with his noſe when it begins to ſmell, and will ſeek about for rags, or paper, to ſupply its place. He had not a particular attachment to his box, for he would often forſake it for ſome obſcure corner, and when once made up his bed, he could only be made to leave his new habitation by force. This animal, which was a female, gave a ſtrong proof of her propenſity to cleanlineſs, for a large male rabbit being put with her when ſhe was in ſeaſon, ſhe received him with a degree of fondneſs, and ſomething was expected from them; ſhe would lick his noſe, ears, and body, and even ſuffer him to take away the greateſt part of her food; but upon voiding his excrement, in their common apartment, ſhe immediately took an averſion to him, and retired to the bottom of an old preſs, making herſelf a bed with paper and rags, nor would ſhe return to her houſe again, until ſhe perceived it was cleared of the dirt and her filthy companion.

The Paca very eaſily becomes domeſticated, and is very gentle and tractable, unleſs when much irritated He is very fond of being noticed, and will lick the hands of thoſe who careſs him; he very readily diſtinguiſhes the voices of thoſe who take care of him, and when ſtroaked on the back, he will lie down on his belly ſtretch himſelf out, and, with a gentle cry, expreſs his gratitude for the favour, and ſeem to aſk a continuance; but if laid hold of in a rough manner, he will ſtruggle violently to eſcape. His muſcles are very ſtrong, yet his feeling is ſo delicate that the ſlighteſt touch on the ſkin will excite in him the moſt ſenſible emotions; and which ſenſibility, though commonly producing good humour, will ſometimes, by irritation, or preſenting an offenſive object, put him in the moſt violent paſſion. A ſtrange dog invariably produces the latter effect; and he has been obſerved, when ſhut in his cage, to make violent efforts to get out upon the appearance of one. It was at firſt thought he had no deſire to come out but upon natural occaſions; but one day, when he was at liberty, he flew out upon a poor dog, and bit him very ſeverely; but in a few days after he became perfectly familiar with the ſame dog. He will alſo fly at ſtrangers, if they plague him, but he never offers to bite thoſe by whom he is taken care of. He has a diſlike to children, and will run after them; and when in a paſſion he makes a kind of grunting, and at the ſame time a chattering with his teeth. He very frequently ſits for a conſiderable time together on his poſteriors, and has a common practice of appearing to comb his head and whiſkers with his paws, which he repeatedly licks with his tongue. When thus employed, he ſcratches all parts of his body which he can reach with his fore-paws, and afterwards the remainder with his hind ones. He is, however, a groſs animal; he does not appear delicate; his coat is not ſmooth; he is far from active, but moves heavily and ſomewhat like an hog; whom he alſo reſembles by the whiteneſs and thickneſs of his ſkin, he ſeldom attempts to run, and when he does it is very aukwardly.

This animal of which we are treating, tho' not full grown, meaſured more than eighteen inches from the point of his noſe to the extremity of his body, and he could ſtretch himſelf out to near two feet, while that I formerly deſcribed was not more than ſeven inches five lines, and this difference was evidently to be attributed to their ages, as in all other reſpects they were perfectly ſimilar.

This animal meaſured about ſeven inches high before, and nine and a half behind, by which his head always appeared lower than his hind parts: his head is five inches long, and rather convex; he has large brown eyes, two inches aſunder, ſhort round ears, covered with a fine down, a broad black noſe, divided, like that of a hare, very large noſtrils, and in which he has great ſtrength ; the upper jaw comes out above an inch beyond the lower ; he has a fold along them that may at firſt ſight be taken for the mouth, but which is ſcarcely perceptible unleſs it is open ; he has two large yellow teeth in each jaw, with which he can cut through wood, and I have known him make a hole in a plank in a ſingle night through which he could put his head ; but, although ſeveral times attempted, he would never permit us to count his grinders ; he has a thick rough tongue, and whiſkers on each ſide his noſe, conſiſting of black and white hairs ; he has five toes on each foot, and long claws on them, of a fleſh colour ; and his tail is merely a kind of button, does not exceed five lines in length, and requires a cloſe inſpection to diſcover it.

The paca, when domeſticated, will eat any thing that is given him, and if fed with bread he ſeems to have an equal reliſh for it, whether ſoaked in water, wine, or vinegar ; he is extremely fond of ſugar and fruits, and will leap about for joy when they are given him ; he ſeems to have the ſame reliſh for grapes, cellery, onions, or garlic ; he will alſo eat graſs, moſs, the bark of trees, or even wood ; he drinks like a dog ; his urine has a diſagreeable ſmell, and his excrements are like thoſe of the rabbit.

As there can be little doubt but theſe animals would produce in the climates of France; as they are eaſily tamed, and their fleſh is excellent food, they might be rendered an advantageous acquiſition, eſpecially as one individual would be equal to ſeven or eight rabbits, and their fleſh not inferior.

M. de la Borde agrees with moſt of the foregoing particulars, and ſays alſo that the paca generally has his hole on the banks of rivers, and that he ſo forms it as to have three ways to enter or retreat; that when diſturbed he takes to the water, and endeavours to effectuate his eſcape by diving frequently, and that he makes a ſtout defence when attacked by dogs.

## THE OPOSSUM.

THE Opoſſum is an animal of America, which is eaſily diſtinguiſhed from all others by two ſingular characters; firſt, the female has under the belly a large cavity where ſhe receives, and ſuckles her young ; ſecondly, both male and female have no claws on the great toes of the hind-feet, which is ſeparated from the others, as the thumb in the human hand, whilſt all the other toes are armed with crooked claws. The firſt of theſe characters has been obſerved by moſt travellers and naturaliſts, but the ſecond had eſcaped their obſervation. Edward Tyſon, an Engliſh phyſician, ſeems to be the firſt who made this remark ; and he only has given a good deſcription of the female in a treatiſe printed in London in 1698, under the title of The Anatomy of an Opoſſum. Some years after, W. Cooper, a celebrated Engliſh Anatomiſt, communicated to Tyſon the obſervations which he had made upon the male. Other authors, and eſpecially the nomenclators, who have multiplied beings without neceſſity, have here fallen into the ſame errors, which it is not neceſſary to correct.

Our opoſſum, deſcribed by Tyſon, is the ſame animal as the oriental philander of Seba, ſince of all the animals which Seba has deſcribed, and to which he gave the name of philander, opoſſum, or carigueya, this is the only one who has a bag under the belly, and thumbs without claws behind. This animal is a native of the warm climates of the new world; for the two we have in the king's cabinet came from America. That which Tyſon had, was ſent him from Virginia. M. de Chanvallon, correſpondent of the Academy of Sciences in Martinico, who has given us a young opoſſum, acknowledged the two others to be true opoſſums of America. All the travellers agree, that this animal is found in Braſil, New Spain, Virginia, and the Antilles; and none mention having ſeen it in the Eaſt Indies; thus Seba was miſtaken in calling it the oriental philandre. He ſays, his philandre was ſent him from Amboyna, under the name of *coes-coes*, with other curioſities, but he confeſſes, at the ſame time, that it had been tranſported from ſome other remote countries to Amboyna. This ſhould be ſufficient to ſhew, that the denomination of oriental philandre was improper; for it is poſſible that travellers have tranſported this animal from America to the Eaſt Indies, but nothing proves that he is a native of Amboyna; and even the paſſage of Seba, which we have quoted, ſeems to indicate the contrary. The cauſe of this error, and even of the name *coes-coes*, is found in Piſo, who ſays, that in the Eaſt Indies, and only in the iſland of Amboyna, is found an animal very much like the opoſſum of Braſil, to whom the natives give the name of *cous-cous*, Piſo quotes no authority for this aſſertion. It would be ſtrange, if it was true, as Piſo affirms, that this animal is only found in Amboyna, while Seba, on the contrary, ſays, that the opoſſum ſent him from Amboyna, was not a native of that iſland, but had been brought there from more diſtant countries; though he was ignorant of the native country of his philandre, he nevertheleſs gave him the epithet of oriental, though he is certainly the ſame animal as that of the Weſt Indies; the proof of it will clearly appear by comparing the figure he has given with Nature. But another error of this author is, that while he gives to the opoſſum of America the name of great oriental philandre, he preſents us another animal, which he thinks a different one, under the name of the philandre of America; and which, according to his own deſcription, differs only from the former by being ſmaller, and having the ſpots above the eyes of a deeper brown colour; which differences are merely accidental, and too inconſiderable to conſtitute two different ſpecies, for he does not mention another difference more eſſential, if it exiſted, that Seba's philandre of America has ſharp claws on the hind toes of the hind feet, while his oriental philandre has no claws upon his two thumbs. It is certain, that our opoſſum, which is the true one of America, has no claws to his toes behind; if an animal with ſharp claws did exiſt, ſuch as is repreſented by Seba, it could not be, as he aſſerts, the opoſſum of America. But this is not all, Seba mentions a third animal, under the name of oriental philandre, of whom, however, he ſpeaks only after Valentin, an author who, as we have obſerved already, deſerves little credit: and this third animal is yet the ſame as the two firſt. We are, therefore, perſuaded that the three animals of Seba are individuals of the ſame ſpecies, and which ſpecies is the ſame as our opoſſum; and that the difference between them might be occaſioned by their age, as it entirely conſiſts in their ſize and ſlight variations in their colour, particularly in the ſpots above their eyes.

Seba ſays, " that according to Valentin, this laſt philandre is the largeſt ſpecies ſeen in the Eaſt Indies, and particularly among the Malays, where he is called *pelandor aroë*, which ſignifies a rabbit of *Aroë*, though Aroé is not the only place where theſe animals are found; that they are common in the iſland of Solor; that they are kept promiſcuouſly with rabbits, to whom they do no harm; and that the inhato whom the natives give the name of *cous-cous*, Piſo quotes no authority for this aſſertion. It would be ſtrange, if it was true, as Piſo affirms, that this animal is only found in Amboyna, while Seba, on the contrary, ſays, that the opoſſum ſent him from Amboyna, was not a native of that iſland, but had been brought there from more diſtant countries; though he was ignorant of the native country of his philandre, he nevertheleſs gave him the epithet of oriental, though he is certainly the ſame animal as that of the Weſt Indies; the proof of it will clearly appear by comparing the figure he has given with Nature. But another error of this author is, that while he gives to the opoſſum of America the name of great oriental philandre, he preſents us another animal, which he thinks a different one, under the name of the philandre of America; and which, according to his own deſcription, differs only from the former by being ſmaller, and having the ſpots above the eyes of a deeper brown colour; which differences are merely accidental, and too inconſiderable to conſtitute two different ſpecies, for he does not mention another difference more eſſential, if it exiſted, that Seba's philandre of America has ſharp claws on the hind toes of the hind feet, while his oriental philandre has no claws upon his two thumbs. It is certain, that our opoſſum, which is the true one of America, has no claws to his toes behind; if an animal with ſharp claws did exiſt, ſuch as is repreſented by Seba, it could not be, as he aſſerts, the opoſſum of America. But this is not all, Seba mentions a third animal, under the name of oriental philandre, of whom, however, he ſpeaks only after Valentin, an author who, as we have obſerved already, deſerves little credit: and this third animal is yet the ſame as the two firſt. We are, therefore, perſuaded that the three animals of Seba are individuals of the ſame ſpecies, and which ſpecies is the ſame as our opoſſum; and that the difference between them might be occaſioned by their age, as it entirely conſiſts in their ſize and ſlight variations in their colour, particularly in the ſpots above their eyes.

Seba ſays, "that according to Valentin, this laſt philandre is the largeſt ſpecies ſeen in the Eaſt Indies, and particularly among the Malays, where he is called *pelandor aroē*, which ſignifies a rabbit of *Aroē*, though Aroé is not the only place where theſe animals are found; that they are common in the iſland of Solor; that they are kept promiſcuouſly with rabbits, to whom they do no harm; and that the inhabitants eat their fleſh, which they reckon excellent." Theſe facts are very doubtful, not to ſay abſolutely falſe, for according to Seba, this is not the largeſt ſpecies of the oriental philandre, that it bears no reſemblance to the rabbit, therefore is very improperly termed the rabbit of Aroé; and that no perſon who has travelled in the Eaſt Indies has mentioned this remarkable animal; neither is he found in the iſland of Solor, nor in any other part of the ancient continent. Seba himſelf ſeems to have perceived not only the incapacity, but alſo the inaccuracy of the author whom he quotes: F. Valentin has written a Natural Hiſtory of the Eaſt Indies in five volumes folio, and for the credit due to his teſtimony, both Artedi and Seba refer to a paſſage wherein he affirms, "that the pouch of the philandre is the womb in which the young are conceived; that having himſelf diſſected a female, he found no other; and if that pouch is not the real womb, the teats are to the young, what the pedicles are to fruits, that they ſtick to them till they are ſufficiently grown, and then they are ſeparated like the fruit, when it is come to ripeneſs." What ſeems to be the truth is, that Valentin, who affirms that thoſe animals are common in the Eaſt Indies, eſpecially at Solor, had never ſeen any there; that all he ſays, even his moſt manifeſt errors, are copied from Piſo and Marcgrave, who are themſelves copyiſts of Ximenes, and are miſtaken in every thing they have advanced of their own authority; for Marcgrave and Piſo ſay expreſsly and obſervatively, as well as Valentin, that the pouch is the true womb where the young of the opoſſums are conceived. Marcgrave ſays, he diſſected one, and found no other womb: Piſo, who ſays he diſſected many, affirms he never could diſcover any womb in the internal parts, and alſo maintains the opinion, equally ill-grounded, that this animal is found at Amboyna. One may judge of what credit ought to be given to Marcgrave, Piſo, and Valentin's aſſertions, the firſt of whom had not examined with accuracy; the ſecond had added to the errors of the firſt, and the laſt copied from both.

I ſhould willingly aſk pardon of my reader for the length of this critical diſquiſition, but when obliged to correct errors, we cannot be too exact or too attentive, even to the ſmalleſt circumſtances.

M. Briſſon, in his work upon the quadrupeds, has adopted whatever he found in that of Seba, and adopts both his denominations and deſcriptions ; he goes even farther than his author, in making three diſtinct ſpecies of the philanders, deſcribed by Seba ; for, if he had adhered to Seba, he would have obſerved that the latter did not give them as really different from each other. Seba had no doubt that an animal of the warm climates of America, could be found alſo in the torrid regions of Aſia ; but he diſtinguiſhed them according as they came to him from one or the other continent. It ſeems clear, that he does not uſe the word ſpecies in its moſt ſtrict ſenſe, nor did Seba ever pretend to make a methodical diviſion of animals into claſſes, genera, and ſpecies ; he has only given the figures of the different animals in his cabinet, diſtinguiſhing by names, according as he ſaw ſome difference in their ſize, colour, or the countries from which he received them. It appears, therefore, that M. Briſſon was not authoriſed by Seba, in making three different ſpecies of philanders, eſpecially as he has not employed the diſtinctive characters, and makes no mention of the want of the claws, in the hind toes of the hind feet ; he only ſays, in general, that the toes of the philanders have claws, without making any exception ; yet the one which he ſaw in the King's cabinet, and which is our opoſſum, had no claws to the hind toes of the hind legs, and which ſeems to be the only one he has ſeen. The work of M. Briſſon is very uſeful, but in his catalogue the ſpecies are more numerous than in that of Nature.

We have now only to examine the nomenclature of Linnæus, which in this article is much leſs erroneous than in many others, for he ſuppreſſes one of the three ſpecies of Seba; but he ſhould have reduced them to one. Beſides, he employs the diſtinctive character of the toes behind without claws, which none but Tyſon had obſerved. The deſcription which Linnæus gives of the opoſſum as the *marſupialis*, ſeems to be a good one, and agreeable to Nature, but he is in an error when under the name of opoſſum he deſigns an animal different from his *marſupialis*, upon the authority of Seba, acknowledging, however, that this opoſſum had no claws to the toes behind, whilſt they are very viſible in the figures of Seba. Another error is, conſidering the *maritacaca* of Piſo, as the ſame animal as the *carigueya*, whilſt theſe two animals, though mentioned in the ſame chapter, are mentioned by Piſo as two different animals, and he deſcribes them one after the other. But his greateſt error is making two different ſpecies of the *marſupialis*

*marſupialis* and the opoſſum; they have both, according to Linnæus, the pouch, the hind toes of their hind feet have no claws, are both natives of America, and only differ in this reſpect, by the firſt having eight paps, and the ſecond only two, and the ſpot above the eyes more pale. Theſe characteriſtics cannot be ſufficient to diſtinguiſh them as diſtinct ſpecies; for the firſt can ſcarcely be called a difference; nor can any thing be eſtabliſhed as fixed or certain, in regard to the order and the number of the paps, ſince they vary in the ſame ſpecies of moſt animals.

From this examination, which we have made with ſtrict impartiality, it appears, that the *philander, opoſſum, ſeu carigueya Braſilienſis*, and the *philander orientalis, maximus* of Seba; thoſe of M. Briſſon, and the *marſupialis* and *opoſſum* of Linnæus are all of them the ſame animal, which is our opoſſum, whoſe natural climate is South America; and who was never ſeen in the Eaſt Indies, but when tranſported thither. Upon this ſubject, ſome uncertainty ſtill remains in regard to the *taiibi*, which Marcgrave does not mention as an animal different from the *carigueya*, but which Johnſton, Seba, Klein, Linnæus, and Briſſon, have preſented as diſtinct from the preceding. In

Marcgrave the two names of *carigueya* and *taiibi* are found in the ſame article, where it is ſaid, that this animal is called *carigueya* in Braſil, and *taiibi* in Paraguay. There is afterwards a deſcription of the *carigueya* taken from Ximenes; and then another is given of the animal called *taiibi*, by the Braſilians; *cachorro domato*, by the Portugueſe, and *booſchratte*, or the rat of the wood, by the Dutch. Marcgrave does not ſay this is an animal different from the *carigueya*, but, on the contrary, conſiders it as the male of that ſpecies; and it appears clearly, that the male and female opoſſum were called *taiibi* in Paraguay, and that in Braſil they gave the name of *taiibi* to the male, and that of *carigueya* to the female. Beſides, the difference between thoſe two animals, ſuch as it is indicated by their deſcriptions, is too inconſiderable to conclude they are not the ſame ſpecies. The moſt eſſential is, the colour of the hair, which in the *carigueya* is yellow and brown, and grey in the *taiibi*, the hairs of which are white at their bottom, and brown or black at the extremities. It is therefore more than probable, that the *taiibi* is the male opoſſum. Mr. Ray ſeems to be of that opinion, when ſpeaking of the *carigueya*, and the *taiibi*. Yet, notwithſtanding Marcgrave's authority, and the rational doubt of Ray, Seba gives the figure of an animal, under the name of the *taiibi*; and ſays, at the ſame time, that this *taiibi* is the ſame animal as the *tlaquatzin* of Hernandes; this is adding error upon error; for even according to Seba, his *taiibi*, which is a female, has no bag under the belly; and Hernandes gives to his *tlaquatzin* this bag as a particular characteriſtic; conſequently the *taiibi* of Seba cannot be the *tlaquatzin* of Hernandes, as it has no pouch, nor the *taiibi* of Marcgrave, ſince it is a female; it is certainly another animal badly deſigned, and equally ſo deſcribed, to whom Seba thought proper to give the name of *taiibi*, and which he confounds with the *tlaquatzin* of Hernandes, who, as we have ſaid before, is our opoſſum. Briſſon and Linnæus have, in regard to the *taiibi*, literally followed Seba; they have copied even his error in regard to the *tlaquatzin* of Hernandes, and have both made an equivocal ſpecies of this animal, the firſt under the name of *philandre* of Braſil, and the ſecond under that of *philander*. The true *taiibi* of Marcgrave and Ray, is not, therefore, the *taiibi* of Seba, the *philander* of Linnæus, nor the Braſilian *philander* of Briſſon; nor are the two latter the *tlaquatzin* of Hernandes. The *taiibi* of Seba (ſuppoſing his exiſtence)

ence) is a different animal from all thoſe treated of by the above authors, and ought to have had a particular denomination, and not been confounded with the *taiibi* of Marcgrave, who has nothing in common with him; beſides, as the male opoſſum has no pouch, it is not ſurpriſing that they have been taken for different animals, and that the female is called carigueya, and the male taiibi.

Edward Tyſon, diſſected and deſcribed the female opoſſum with care; in the individual which ſerved him for á ſubject, the head was ſix inches, the body thirteen, and the tail twelve in length: the fore-legs were ſix inches, and the hind legs four inches and a half in height: the body was fifteen or ſixteen inches in circumference; the tail three inches round in the beginning, and only one inch towards the extremities; the head three inches betwixt the two ears, decreaſing gradually to the noſe; and was more like that of a pig than a fox; the ſockets of their eyes are much inclined in the direction from the ears to the noſe; the ears are rounded, and about an ich and a half long, the mouth was two inches and a half wide from one of the corners of the lip to the extremity of the ſnout; the tongue narrow, three inches long, and rough; his fore feet had five toes armed with crooked claws, but in the hind feet he had only four toes with claws, and the fifth toe, or thumb, was ſeparated from the others, was placed lower, and had no claws. All his claws were without hair, and covered with a ſkin of a reddiſh colour, and very near an inch in length; his hind and fore-paws were large, and he had fleſhy calloſities under all the toes. The tail was covered with hair for two or three inches from the beginning, and the reſt with a ſmooth ſcaly ſkin to the end. Theſe ſcales were whitiſh, almoſt hexagonal, and placed regularly, ſo that they did not encroach upon each other, but were divided by a ſkin more brown than the ſcales. The ears were without hair, thin and membranous like the wings of a bat, and very open. The upper jaw longer than the under; the noſtrils large, the eyes ſmall, black, and lively; the neck ſhort, the breaſt wide, and the whiſkers like thoſe of the cat: the hairs of the forehead whiter and ſhorter than thoſe of the body; his colour a yellowiſh grey, intermixed with black on the back and ſides, more brown on the belly, and ſtill deeper on the legs. Under the belly of the female *(fig. 131.)* is a ſkin two or three inches long, which forms a kind of pouch by a double fold thinly covered with hair on the inſide, and which pouch contains the teats. The young enter into this pouch to ſuck, and ſoon acquire the habit of hiding themſelves in it, ſo that they retire thither whenever they are frightened. This pouch opens and ſhuts according to the will of the animal; which it effects by ſeveral muſcles and two bones, which are peculiar to the opoſſum; theſe two bones are about two inches in length, placed by the os pubis, they decreaſe gradually from the baſis to the extremities, and ſupport the muſcles which open the pouch; the antagoniſts of theſe muſcles ſerve to ſhut it ſo exactly, that in the living animal the opening cannot be ſeen, without forcibly dilating it with the fingers. The inſide of this pouch is full of kernels, which contain a yellow ſubſtance, the ſmell of which is ſo offenſive, that it infects the whole body of the animal; yet when this matter is dried, it not only loſes its diſagreeable ſmell, but acquires a perfume which may be compared to that of muſk. This pouch is not, as Marcgrave and Piſo have falſely aſſerted, the place in which the young are conceived; the female opoſſum has an internal womb, different indeed from that of other animals, but in which the young are conceived, and remain till they are brought forth. Tyſon ſays, that in this animal there are two wombs, two vaginas, and four ovariums. M. Daubenton does not agree with Tyſon in theſe particulars; but by his deſcription, it is at leaſt certain, that in the organs of generation of the opoſſums, there are ſeveral parts double which are ſingle in other animals. The glans penis of the male, and the glans clitoridis in the female, are forked, and ſeem double. The vagina, which is ſingle at the entrance, is afterwards divided into two channels; this conformation is very ſingular, and differs from that of all other quadrupeds.

The opoſſum belongs to the ſouth parts of the new world, but he does not, like the armadillo, ſeem confined to the hotteſt climates, for he is found not only in Braſil, Guiana, and Mexico, but alſo in Florida, Virginia, and other temperate regions of this continent. They are very common in theſe countries, as they bring forth often, and moſt authors ſay four or five, others ſix or ſeven, at a time. Marcgrave affirms, that he has ſeen ſix living young in the pouch of the female; they were about two inches in length, were very nimble, and went in and out of the pouch many times in a day. They are very ſmall when juſt brought forth: ſome travellers ſay they are not bigger than flies when they go out of the womb into the pouch, and attach themſelves to the teats. This fact is not ſo much exaggerated as might be imagined, for we have ſeen in an animal, whoſe ſpecies is ſomewhat like that of the opoſſum, young ſticking to the teats not bigger than beans; and it is not improbable, that, in theſe animals, the womb is only the place of conception and firſt formation of the fœtus, whoſe unfolding is completed in the pouch. No one has obſerved the time of their geſtation, which we think is ſhorter than in any other quadruped, and as this early excluſion of the fœtus is a ſingularity in Nature; we wiſh thoſe who have an opportunity of obſerving the opoſſums in their native country would contrive to diſcover how long the females go with young, and how long the young remain attached to the teats. This obſervation is curious in itſelf, and may become uſeful, in pointing out ſome means of preſerving the lives of children born before their natural period.

That the young opoſſums ſtick to the teats of the mother till they have acquired ſtrength, and a ſufficient growth to move with eaſe, is a fact not to be doubted; nor is it peculiar to this ſpecies only, ſince we have ſeen it in that of the *marmoſe*. The female marmoſe has not, like the opoſſum, a bag under the belly ; it is not, therefore, in conſequence of the aſſiſtance which the young receive from the pouch that they ſtick ſo long to the teats, and increaſe in that immoveable ſituation. I make this obſervation to prevent the pouch being conſidered as a ſecond womb, or at leaſt an aſylum neceſſary to the young before they are unfolded. Some authors pretend that they ſtick to the teats for ſeveral weeks, others ſay that they remain in the pouch only the firſt month after they come out of the womb. The pouch may be opened, the young counted, and even felt, without diſturbing them, for they do not leave the teats, which they hold with their mouths, before they are ſtrong enough to walk ; then they fall into the bag, and afterwards go out to ſeek for their ſubſiſtence ; they often go in again to ſleep, to ſuck, and to hide themſelves when terrified ; in caſes of danger the mother flies, and carries the whole of her young with her. Her belly does not ſeem bigger when ſhe breeds than common, for in the time of the true geſtation it is ſcarcely perceivable that ſhe is with young.

From inſpecting the form of the feet it is eaſy to perceive that he walks and runs aukwardly ;

wardly; it is ſaid a man can overtake him without haſtening his ſteps. He climbs up trees with great facility, hides himſelf in the leaves to catch birds, or hangs by the tail, the extremity of which is ſo muſcular and flexible that he can incurvate any thing he ſeizes with it. He ſometimes remains a long while in this ſituation, his body ſuſpended, with his head hanging downward, waiting for his prey. At other times he jumps from one tree to another, as the monkies, with like muſcular flexible tails, which he reſembles alſo in the conformation of his feet. Though carnivorous, and even greedy of blood, which he ſucks with avidity, he feeds alſo upon reptiles, inſects, ſugar-canes, potatoes, roots, and even leaves and bark of trees. He may eaſily be rendered a domeſtic animal, for he is neither wild nor ferocious, and eaſily tamed; but he creates diſguſt by his ſmell, which is more offenſive than that of the fox; his figure is alſo forbidding, for his ears are like thoſe of an ounce, his tail reſembles that of a ſerpent, his mouth is cleft to the very eyes, his body appears always dirty, becauſe his hair is neither ſmooth nor curled, and ſeems as if covered with dirt. His bad ſmell reſides in the ſkin, for his fleſh is eatable. The ſavages hunt this animal by preference, and feed on his fleſh heartily.

## SUPPLEMENT.

M. de la BORDE has ſent me an account of three opoſſums, which he kept in a caſk at Cayenne; in moſt particulars it agrees with the deſcription already given; he ſays they are very eaſily tamed, and feed upon fiſh, fleſh, bread, &c. that thoſe he had poſſeſſed no diſagreeable ſmell, but that there are two ſpecies, the one of which has ſo ſtrong an odour as to be called ſtinking by the inhabitants, and that their fleſh is not good to eat.

M. de Voſmaër, to his deſcription of the flying ſquirrel, has added a note, in which he ſays, "the *coes-coes* is the *boſch* of the Eaſt-Indies, the *philander* of Seba, and the *didelphis* of Linnæus. M. de Buffon has confined this animal to the new world, and poſitively denies its exiſtence in the Eaſt-Indies;" but we can aſſure that learned naturaliſt that Valentin and Seba ſaid no more than the truth, in affirming they were common to both Aſia and America, for I have had a male and female ſent me from the Eaſt-Indies, and Dr. Schloſſer, at Amſterdam received one of the ſame ſpecies from Amboyna. The principal difference between thoſe of the Eaſt and Weſt-Indies is in the colour of the hair, the male of the former being of a yellowiſh white, and the female a little darker, with a brown line on the back, and their ears are leſs than thoſe of the latter. The heads alſo of the Weſt-India ſpecies are much ſhorter than thoſe of the Eaſt." I have not the ſmalleſt reaſon to doubt M. Voſmaër's receiving two animals from the Eaſt-Indies, under the name of coes-coes, but am of opinion the differences which he points out are ſufficient to induce us not to conſider them the ſame ſpecies as the opoſſums. I, however, confeſs the juſtice of his obſervation upon my making the three philanders of Seba the ſame animal, when, in fact, the third is a different ſpecies, and found in the Philippine Iſlands, and poſſibly in many parts of the Eaſt-Indies, where it is called *coes-coes*, or *cuſcus*. Chriſtopher Barchewitz gives a deſcription of this animal found in the iſland of Lethy, and from the ſimilarity it plainly appears, that the Eaſt-India *cuſcus* is of the ſame genus as the American opoſſum ; but that is no proof of their being of the ſame ſpecies ; and I am ſtill of opinion, that the animals of one continent will not be found in the other, unleſs they have been tranſported thither. I do not mean to deny the poſſibility of the ſame climates in the two continents producing ſome animals of exactly the ſame ſpecies, provided other circumſtances were the ſame ; I am not, however, treating here of poſſibilities, but of general facts, of which we have given many inſtances in our enumeration of animals peculiar to the two continents ; and, upon the whole, I am inclined to conſider the coes-coes of the Eaſt-Indies as an animal whoſe ſpecies approaches very near that of the opoſſums of America, but that they have ſimilar kind of differences, as are obſervable between the jaguar and leopards, which of all animals peculiar to the ſouthern climates of the two continents, without being the ſame ſpecies, come the neareſt to each other.

## THE MARMOSE.

The ſpecies of the Marmoſe, or Murine Opoſſum, *(fig.* 132.*)* reſembles that of the preceding; they are natives of the ſame climate and the ſame continent; they are very much alike in the form of the body, the conformation of the feet, in the tail, which is moſtly covered with ſcales, except the upper part, which is hairy, and by the teeth, which are more numerous than in other quadrupeds. But the marmoſe is ſmaller, and his ſnout ſharper; the female has no pouch under the belly, ſhe has only two looſe ſkins near the thighs, between which the young fix themſelves to the teats. The parts of generation of the male and female marmoſe reſemble, by their form and their poſition, thoſe of the opoſſum. When the young are brought forth, and fix themſelves to the teats, they are not ſo big as ſmall beans. The brood is alſo more numerous; I have ſeen ten young ones, each ſticking to a different teat, and the mother had four more teats, which made fourteen in all. It is particularly on the females of this ſpecies that the obſervations, recommended in the preceding article, ſhould be made ; as I am perſuaded they bring forth a few days after conception, and that the young are only fœtuſes which are not come to the fourth part of their growth. The mother always miſcarries, and the fœtuſes ſave their lives by ſticking to the teats, and never leaving them till they have acquired the growth and ſtrength which they would naturally have got in the womb, if they had remained until the proper period.

The marmoſe has the ſame manners, and the ſame inclinations, as the opoſſum ; both of them dig burrows to dwell under the ground, hang by the extremities of their tails to the branches of trees, and ruſh upon birds and ſmall animals ; they eat fruit, corn, and roots, but they are ſtill more greedy of fiſh and craw-fiſh, which, it is affirmed, they catch with their tails. This fact, however, is doubtful, and does not agree with the natural ſtupidity attributed to thoſe animals, who, according to the relation of moſt travellers, do not even know how to move, fly, or defend themſelves, with any degree of art.

## THE CAYOPOLLIN.

FERNANDES is the firſt author who has mentioned this animal. The Cayopollin, ſays he, is a ſmall animal, little bigger than a rat, very much reſembling the opoſſum in the ſnout, ears, and tail, and which he makes uſe of as we do our hands; he has thin tranſparent ears; his belly, legs, and feet, are white. The young, when frightened, ſeize hold of the mother, who carries them up on the trees. This ſpecies is found on the mountains of New Spain. Nieremberg has copied Fernandes verbatim, without any addition of his own. Seba, who firſt cauſed this animal to be engraved, gives no deſcription of it; he only ſays, that he has the head thicker, and the tail a little bigger than the marmoſe, and that though he is of the ſame kind he belongs to another climate, and even to another continent. He refers his readers to Nieremberg and Johnſton for a further deſcription of this animal; but it ſeems evident that neither of them had ſeen him, as they only follow Fernandes. Neither of theſe three authors ſay that he is a native of Africa, on the contrary, they aſſert, that he comes originally from the mountains of the warm climates of America, and yet Seba, without any authority, has pretended, that it is an African animal. That which we have ſeen certainly came from America; he was larger, had not the ſnout ſo ſharp, and the tail was longer than thoſe of the marmoſe; and he more reſembled the opoſſum than even the marmoſe does. Theſe three animals are much alike in the conformation of their interior and exterior parts, in their additional bones, form of their feet, in being brought forth before their entire formation, their long and continued adherence to the teats, and in their habits and diſpoſitions. They are all three natives of the new world, and of the ſame climate; they are never found in the cold regions of America, nor can hardly live in temperate climates. All of them are very ugly; their mouths extended like that of a pike, their ears like thoſe of a bat, their tails like that of a ſnake, with their monkey's feet, preſent a very odd form, which is rendered ſtill more diſagreeable by their bad ſmell, and by the ſlowneſs and ſtupidity which accompany their actions and manners.

## THE ELEPHANT.

THE Elephant, the human ſpecies excepted, is the moſt conſiderable animal of this world; he ſurpaſſes all terreſtrial beings in ſize, and comes near to man for underſtanding, as much, at leaſt, as matter can approach rational faculties. The elephant, dog, beaver, and ape, of all the animated beings, have the moſt admirable inſtinct; but this inſtinct, which is only the product of all the interior and exterior faculties of the animal, manifeſts itſelf very differently in every one of theſe ſpecies. The dog is naturally as cruel and bloody as the wolf; but his ferocious nature is to be conquered by gentleneſs: he only differs from the other animals of prey, by poſſeſſing a degree of ſenſibility, which makes him ſuſceptible of affection, and capable of attachment. He has from nature this diſpoſition, which man has cultivated and improved by a conſtant and ancient ſociety with this animal. The dog alone was worthy of this attention, as he is more capable than any other quadruped of foreign impreſſions, his ſocial nature has improved all his relative faculties. His ſenſibility, tractable temper, courage, talents, and even his manners, are modified by the example and qualities of his maſter. He has not then, from nature, all thoſe qualifications he appears to poſſeſs, but has acquired them from his intercourſe with men; he is only more ſuſceptible of tuition than other animals; far from having, like moſt of them, a diſguſt for man, his inclination leads him to ſeek their ſociety: actuated by a deſire of pleaſing, his tractability, fidelity, conſtant ſubmiſſion, and that attention neceſſary to act in conſequence of man's orders, are the reſult of this natural ſentiment.

The ape, on the contrary, is untractable and extravagant; his nature is perverſe; he has no relative ſenſibility, no gratitude for good treatment, and no remembrance of favours, influence him; he is naturally averſe to the ſociety of man, he hates conſtraint, is miſchievous by nature, and inclined to do every thing hurtful and diſagreeable. But theſe real faults are compenſated by ſeeming perfections. His exterior conformation reſembles that of man, he has arms, hands, and fingers. The uſe of theſe parts alone, makes him ſuperior in dexterity to other animals; and the relation that he has to us by a ſimilarity of motions, and the conformity of his actions, pleaſe and deceive us, and induce us to attribute to interior qualities, what depends merely on the formation of his members.

The beaver, who ſeems inferior to the dog and ape, by his individual faculties, has received from Nature a gift almoſt equivalent to that of ſpeech; he makes himſelf ſo well underſtood by thoſe of his own ſpecies, as to bring them together, to act in concert, and to undertake and execute large and long continued labours in common; and this ſocial love, as well as the product of their reciprocal underſtanding, have better claims to our admiration, than the dexterity of the ape, or the faithfulneſs of the dog.

Thus the dog's genius is only borrowed; the ape has but the appearance of ſagacity, and the beaver is only ſenſible in regard to himſelf, and thoſe of his ſpecies. The elephant is ſuperior to them all three, for in him are united all their moſt eminent qualities. The hand is the principal organ of the ape's dexterity; the elephant

phant is equally ſo with his trunk, which ſerves him inſtead of arms and hands, by it he can lift up, and ſeize ſmall as well as large objects, carry them to his mouth, place them on his back, hold them faſt, or throw them to a diſtance; he has at the ſame time the docility of the dog; he is, like him, ſuſceptible of gratitude, capable of a ſtrong attachment, attends upon man without reluctance, and ſubmits to him, not ſo much by force, as good treatment; ſerves him with zeal, intelligence, and fidelity; in fine, the elephant, as the beaver, likes the ſociety of his own ſpecies, and by whom he is underſtood. They are often ſeen to aſſemble together, diſperſe, and act in concert, and if they do not carry on any work in common, it is, perhaps, only for want of room and tranquillity; for men have been very anciently multiplied in all the regions inhabited by the elephant; he conſequently lives in fear and anxiety, and is no where a peaceful poſſeſſor of a ſpace large enough to eſtabliſh a ſecure habitation. We have ſeen that all theſe advantages are requiſite to manifeſt the talents of the beaver, and wherever men are ſettled, he loſes his induſtry, and ceaſes to build. Every being has its relative value in Nature. To judge of the elephant, we muſt allow him to poſſeſs the ſagacity of the beaver, the dexterity of the ape, the ſentiment of the dog, with the peculiar advantages of ſtrength, bigneſs, and longevity. We muſt not forget his arms, or tuſks, with which he can pierce through, and conquer the lion. We ſhould alſo recollect that he ſhakes the ground at every ſtep; that with his trunk he roots out trees; that with the ſtrength of his body, he makes a breach in a wall; that though tremendous by his ſtrength, he is more invincible by the reſiſtance of his bulky maſſiveneſs, and the thickneſs of his ſkin; that he can carry on his back an armed tower filled with many men; and that he alone moves machines, and carries burthens, which ſix horſes cannot move. To this prodigious ſtrength, he joins, courage, prudence, coolneſs, and an exact obedience; he preſerves moderation even in his moſt violent paſſions; he is more conſtant than impetuous in love: in anger he does not forget his friends; he never attacks any but thoſe who have given him ſome offence; and he remembers favours as long as injuries. Having no taſte for fleſh, and feeding chiefly upon vegetables, he is not naturally an enemy to any living creature; he is beloved by them all, ſince all of them reſpect, and no one has cauſe to fear him. For theſe reaſons, men at all times have had a ſort of veneration for this firſt of animals. The ancients conſidered the elephant as a miracle of Nature, and he is in reality her greateſt effort : they have attributed to him, without heſitation, intellectual qualities and moral virtues.

Pliny, Ælian, Solinus, Plutarch, and other authors more modern, have even given to this animal rational faculties, a natural innate religion, the obſervation of a daily worſhip, ſuch as that of the ſun and moon, the uſe of ablution before adoration, a ſpirit of divination, piety towards heaven, and their fellow creatures, whom they aſſiſt at their deaths ; and after their deceaſe, expreſs their regret by tears, and cover them with earth. The Indians, prepoſſeſſed with the opinion of the metemſychoſis, are to this day perſuaded, that a body ſo majeſtic as that of the elephant cannot be animated but by the ſoul of a great man, or a king. They reſpect at Siam *, Laos, and Pegu, white elephants

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* The white elephant, ſo much reſpected in India, and who has been the cauſe of ſo many wars, is very ſmall and wrinkled with age. He is attended by ſeveral mandarins who are appointed to take care of him, and his victuals is preſented to him in large golden veſſels ; his apartment is very magnificent, and gilt all round. At about a league from the country-

phants as the living manes of the Emperors of India. They have each of them a palace, a number of ſervants, golden veſſels, exquiſite dainties, magnificent trappings, and are abſolved from all labour and obedience; the living Emperor is the only one before whom they kneel down, and the monarch returns the ſalute. Theſe flattering attentions they reſpect, but they do not inſpire them with vanity; they have not conſequently a human ſoul, and this circumſtance ſhould be ſufficient to prove it to the Indians.

Without adopting the credulities of antiquity, and the puerile fictions of ſuperſtition, the elephant is an animal ſtill worth the attention of a philoſopher, who ought to conſider him as a being of the firſt diſtinction. He deſerves to be known, and to be obſerved; we ſhall therefore write his hiſtory with impartiality; we ſhall conſider him at firſt in his ſtate of nature when he is free and independent, and afterwards in his ſervile condition, when the will

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country-houſe belonging to the king, is another white elephant, kept as a ſucceſſor to the former, whom they ſay is 300 years old. He is alſo attended by mandarins, and his mother and aunt are kept with him out of reſpect. *Premier Voyage du P. Tachard.*

will of his maſter becomes the cauſe of his actions.

In a wild ſtate, the elephant is neither bloody nor ferocious; he is of a mild temper, and never makes a bad uſe of his arms, or his ſtrength; for he never employs or exerts them but in his own defence, or in protecting others of his ſpecies. His manners are ſocial, for he is ſeldom wandering alone: they commonly walk in troops, the oldeſt leading, and the next in age bringing up the rear; the young and the weak keeping in the middle. The females carry their young, and hold them cloſe with their trunks. They only obſerve this order in perilous marches when they go to feed on cultivated lands; they travel with leſs precaution in foreſts and ſolitary places, but without ſeparating to ſuch a diſtance as not to be able to give to each other mutual aſſiſtance, and warnings of danger. Some, however, ſtraggle, and remain behind, and it is none but theſe the hunters dare attack, for a ſmall army would be requiſite to aſſail the whole herd, and they could not conquer without a great loſs of men. It is even dangerous to do them the leaſt injury for they go ſtraight to the offender, and notwithſtanding the great heavineſs of their bodies they walk ſo faſt that they eaſily overtake the moſt agile man; they pierce him through with their tuſks, or ſeize with their trunks, throw him againſt a ſtone, and then kill him by treading him under their feet. But it is only when they have been provoked that they become ſo furious and ſo implacable: they do no harm to thoſe who do not diſturb them; yet, as they are very ſuſpicious, and ſenſible of injuries, it is proper to avoid them; and the travellers who frequent the countries where they are numerous, light great fires in the night, and beat drums, to prevent their approach. It is ſaid that when they have been once attacked by men, or have fallen into a ſnare, they never forget it, but ſeek for revenge on all occaſions. As they have a moſt exquiſite ſenſe of ſmelling, perhaps more perfect than that of any other animal, they ſmell a man at a great diſtance, and can eaſily follow him by the ſcent. The ancients have written that the elephant tears up the graſs where the hunters have paſſed, and with their trunks convey it to each other, in order to give information of the paſſage and march of the enemy. Theſe animals are fond of the banks of rivers, deep vallies, ſhady places, and marſhy grounds. They cannot go long without water, which they make thick and muddy before they drink.

They often fill their trunks with water, either to convey it to their mouths, or only to cool their noſes, and to amuſe themſelves in ſprinkling it around them. They cannot ſupport cold, and ſuffer equally from exceſſive heat; to avoid the burning rays of the ſun, they penetrate into the thickeſt receſſes of the foreſts. They bathe often in the water; the enormous ſize of their bodies is rather an advantage to them in ſwimming, and they do not ſink ſo deep in the water as other animals, beſides, the length of their trunks, which they erect in the air, and through which they breathe, takes from them all fear of being drowned.

Their common food is roots, herbs, leaves, and young branches; they alſo eat fruit and corn, but they have a diſlike to fleſh and fiſh. When one of them finds a good paſture, he calls the others, and invites them to come and feed with him. As they receive a great quantity of fodder, they often change their place, and when they find cultivated lands they make a prodigious waſte; their bodies being of an enormous weight, they deſtroy ten times more with their feet, than they conſume for their food, which may be reckoned at 150lbs. of graſs daily; and as they always keep in great numbers together, they will lay waſte a large territory in an hour's time; for this reaſon the Indians and Negroes exert every means to prevent their viſits, and to drive them away; they make great noiſes, and large fires round their cultivated lands; yet, notwithſtanding theſe precautions, the elephants often take poſſeſſion of them, drive away the cattle and men, and ſometimes pull down their cottages. It is difficult to frighten them, as they are little ſuſceptible of fear; the only things that can ſtop their progreſs are fire-works, and crackers thrown amongſt them; the ſudden and repeated noiſe of which ſometimes occaſions them to turn back. It is very difficult to part them, for they commonly act together whether they attack, proceed, or turn back.

When the females come in ſeaſon this ſocial intercourſe yields to a more lively ſentiment; the herd ſeparate in pairs, having each choſen their mates; they then ſeek for ſolitary places, and in their march love ſeems to precede and modeſty to follow them; for they obſerve the greateſt myſtery in their amours, and they have never been ſeen to couple. They avoid the inſpection of their own ſpecies, and, perhaps, know better than ourſelves the pure delight of ſecret pleaſure, being wholly taken with one beloved object. They retire into ſhady woods and moſt ſolitary places, to give themſelves up, without diſturbance or reſtraint, to the impulſes of Nature, which are ſtrong and laſting, as they have long intervals between their ſeaſons of love. The female goes two years with young; when ſhe is in that condition the male abſtains from her, and thus are they ſubjected to the influence of love but once in three years. They bring forth only one young, which has teeth at its birth, and is then bigger than a wild boar; his tuſks are not viſible, but they appear ſoon after, and when ſix months old they are ſome inches long. At that age the elephant is bigger than an ox, and the tuſks continue to increaſe till he is much advanced in years, provided the animal is in health, and at liberty, for it is ſcarcely to be imagined how much ſlavery and unnatural food change his natural habit and conſtitution.

The elephant is eaſily tamed, brought into ſubmiſſion, and inſtructed, and as he is the ſtrongeſt and moſt ſenſible of animals, he is more ſerviceable than any of them; but he ſeems always to feel his ſervile condition, for though ſubject to the powerful impreſſions of love they never couple, nor produce in a ſtate of domeſticity. His paſſion, irritated by conſtraint,

ſtraint, degenerates into fury; as he cannot indulge it without witneſſes he becomes violent and intractable, and the ſtrongeſt chains and fetters are often found neceſſary to ſtop his impetuoſity, and ſubdue his anger. Thus the elephant differs from all domeſtic animals which man treats or manages as beings without will; he is not like theſe born ſlaves, which we train or multiply for our uſe. Here the individual alone is a ſlave, the ſpecies remains independent, and conſtantly refuſes to increaſe for the benefit of their tyrants. This alone ſhews in the elephant elevated ſentiments ſuperior to the nature of common brutes. To be agitated by the moſt ardent deſires, and to deny themſelves the ſatisfaction of enjoying them; to be ſubjected to all the fury of love, and yet not violate the laws of modeſty, are, perhaps, the higheſt efforts of human virtue, but which in theſe majeſtic animals are all ſuggeſted by inſtinct, and from which they never deviate. Enraged that they cannot be gratified without witneſſes their fury becomes ſtronger than their paſſion of love, deſtroys the effects of it, and provokes, at the ſame time, that anger which, in thoſe inſtants, renders the elephant more dangerous than any other wild animal.

We ſhould be inclined to doubt of this fact, if it were poſſible, but naturaliſts, hiſtorians, and travellers, all agree, that the elephants never produce in a domeſtic ſtate. The kings of India keep a great number of them, and after having endeavoured in vain to make them multiply, like other domeſtic animals, they found it neceſſary to part the males from the females, to prevent that fury which is occaſioned by the irritation of deſires they will not ſatisfy in a ſtate of ſubjection. There are, therefore, no domeſtic elephants but what have been wild, and the manner of taking, taming, and bringing them into ſubmiſſion deſerves particular attention. In the middle of foreſts, and in the vicinity of the places frequented by the elephants, a ſpot is choſen, and encircled with palliſadoes; the ſtrongeſt trees of the foreſt ſerve for ſtakes, to which are faſtened croſs pieces of timber, which ſupport the other ſtakes. A man may eaſily paſs through this palliſado; a large opening is alſo left, through which the elephant may go in, and over it is a trap, or large ſtake, which is let down to ſhut the opening after the animal has entered. To bring him to this incloſure the hunters take a tame female, who is in ſeaſon, with them into the foreſt, and when they think ſhe is near enough to be heard they oblige her to make the cry of love; the wild male anſwers immediately, and begins his march to meet her. She is then led towards the incloſure, repeating her call now and then; ſhe arrives firſt, and the male following her track enters through the ſame gate. As ſoon as he perceives himſelf encloſed his ardour vaniſhes, and when he diſcovers the hunters he becomes furious; they throw ropes at him with a running knot, by which they fetter his legs and trunk; they then bring two or three tame elephants, led by dexterous men, and endeavour to tie him to one of them; in ſhort, by dint of dexterity, ſtrength, terror, and careſſes, they ſucceed in taming him in a few days.

I ſhall not enter into more particulars on this ſubject, but only refer to thoſe travellers who have been occular witneſſes of the manner of hunting the elephants*; it varies according to different countries, and according to the power and the abilities of thoſe who make war againſt them, for inſtead of erecting, like the kings of Siam, walls, terraces, or making palliſades around large incloſures, the poor negroes uſe the moſt ſimple ſnares; they dig pits in the paſſages, where the elephants are known to paſs, ſo deep as to prevent their getting out again when fallen in.

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* For the purpoſe of hunting the elephant, at a little diſtance from Luovo, they have a kind of amphitheatre, ſurrounded with high walls, where thoſe are placed who wiſh to ſee the ſport. In the middle of theſe walls a palliſade is formed, with ſtrong ſtakes fixed in the ground; a pretty large opening is left on the ſide next the foreſt, and a ſmaller one towards the city, into which the elephant can enter with difficulty. Upon the day fixed upon for the chace, the hunters go into the foreſts upon ſome tame female elephants,

The elephant, when once tamed, becomes the moſt tractable and ſubmiſſive of all animals;

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phants, covering themſelves with leaves to prevent being ſeen; having reaſon to ſuppoſe there are wild ones near, they make the females utter certain cries, and which the wild males inſtantly anſwer; the hunter then drives the female back to the above amphitheatre, whither the male conſtantly follows her, and being entered the large opening is immediately ſhut. At the one we were preſent the females went out on the other ſide, but from the ſmallneſs of the ſize the wild one refuſed to enter; the females repeated their cries, and ſome of the Siameſe began to irritate him, by clapping their hands, and crying *pat, pat*, while others ſtruck him with long poles that had ſharp points, all of whom he purſued, but they eſcaped by ſlipping between the palliſades, ſufficient ſpaces being left for that purpoſe; at length he fixed upon one whom he purſued with great fury, and the man running into this narrow paſſage the elephant followed him, but the moment he entered the bars, before and behind, were let fall, and he no ſooner found himſelf in the ſnare than he made the moſt violent efforts, and raiſed the moſt hideous cries. The hunters then endeavoured to ſooth him by flinging quantities of water upon his body and trunk, rubbing mals ; he conceives an affection for his leader, careſſes him, and ſeems to foreſee whatever can pleaſe him ; in a little time he underſtands ſigns, and even the expreſſion of ſounds ; he diſtinguiſhes the tones of command, anger, or approbation, and acts accordingly. He never miſtakes the voice of his maſter ; he receives his orders with attention, executes them with prudence and eagerneſs, but without precipitation, for his motions are always meaſured, and his character ſeems to participate of the gravity of his body. He is eaſily taught to bend his knees,

rubbing him with leaves, putting oil on his ears, and bringing tame elephants, who ſeemed to careſs him with their trunks, one of which, properly trained, was mounted by a man who made him go backwards and forwards to ſhew, as it were, the ſtranger that he had nothing to fear. Ropes were thrown round his hind legs and body, and then the bar was taken away from the farther end, where being come he was tied to two tame elephants one of each ſide of him ; theſe led him the way while another puſhed him behind with his head until they came to a kind of ſhade where he was faſtened to a large poſt, like the capſtan of a ſhip, and there left 'till the next day. While here, one of the Bramins, or prieſts, dreſſed in white, and mounted on another elephant, goes to him and ſprinkles him with conſecrated water, which they imagine has the power of diveſting him of his ferocity. Next day he is marched off with the other elephants, and by the end of the fifteenth, they are in general perfectly tame. *Premier Voyage du P. Tachard.*

In Ethiopia they take great numbers of theſe animals by forming an encloſure in the the thickeſt parts of the foreſts, leaving knees, to aſſiſt thoſe who ride on his back; he careſſes his friends, ſalutes the perſons he is directed to take notice of, lifts up burdens, and helps to load himſelf with his trunk; he has no aversion to being cloathed, and ſeems to delight in a golden harneſs or magnificent trappings; he is eaſily put into traces, and often employed in drawing; he draws evenly, without ſtopping, or any marks of diſlike, provided he is not inſulted by unſeaſonable correction, and that his driver ſeems to approve the ſpontaneous exertion of his ſtrength. His conductor is mounted on his neck, and makes uſe

leaving a ſufficient opening, with a door lying flat on the ground; the hunters ſit to watch for the elephant on a tree, and as ſoon as he enters they draw up the door with a rope, then deſcend and attack him with arrows, but if by any chance he gets out of his confinement, he kills every man that he can come near. *L'Afrique de Marmol.*

At Ceylon they take the elephant by digging deep ditches and lightly covering them over, in places frequented by theſe animals, who coming upon this covering in the night, unavoidably fall in and are unable to get out again; here the ſlaves ſupply them with food, to whom they, in a ſhort time, are ſo accuſtomed, and familiar, as to be led up to Goa perfectly tame. They have alſo a mode of hunting them with two tame females, whom they take into the foreſts, and coming near a wild elephant, they let them looſe; theſe go up to the ſtrange one on each ſide, preſs ſo cloſely againſt him as to force him their way, and render it impoſſible for him to eſcape. *Memoirs touchant les Indes Orientales. Voyage de la Compagnies des Indes. Voyages P. Philippe, Thevenot, &c.*

uſe of an iron rod, hooked at the end, with which he ſtrikes him on the head, or ſides, to make him turn, or increaſe his pace; but a word is commonly ſufficient, eſpecially if the animal has had time to make himſelf well acquainted with his conductor, and has a confidence in him. His attachment is ſometimes ſo ſtrong, and ſo laſting, and his affection ſo great, that he will refuſe to ſerve a ſecond perſon, and has been known to die of grief, when in a fit of rage he has happened to deſtroy his keeper.

The ſpecies of the elephant is numerous, though they bring forth but one in two or three years. As the life of animals is ſhort the more they ſeem to multiply. In the elephant the length of life compenſates for the ſmall number; and if it is true that they live 200 years, and propagate until they are 120, each couple may bring forth forty in that time. Beſides, having nothing to fear from other animals, and by men are taken with great difficulty and danger, the ſpecies has not decreaſed, and is generally diſperſed in all the ſouthern parts of Africa and Aſia. They are numerous at Ceylon, in the Mogul dominions, in Bengal, Siam, Pegu, and the other territories of India. They are, perhaps, in a greater number in the South of Africa, except ſome parts which they have abandoned, ſince they have been ſo fully inhabited by men. They are faithful to their country, and conſtant to their climate, for though they can live in temperate regions it does not ſeem that they ever attempted to ſettle, or even to travel into them. They were formerly unknown in Europe. It does not ſeem that Homer, who ſpeaks of the ivory, knew the animal from whom it is obtained. Alexander was the firſt who rode upon an elephant in Europe. He ſent into Greece thoſe which he took at Porus, and were, perhaps, the ſame which Pyrrhus employed ſeveral years after againſt the Romans, in the Tarentine war, and with which Curius adorned his triumph into Rome. Annibal afterwards brought them from Africa, made them paſs the Alps, and led them almoſt to the gates of Rome.

From time immemorial the Indians have made uſe of elephants in wár. Among thoſe nations unacquainted with military diſcipline they formed their beſt troop, and as long as battles were decided by iron weapons they commonly vanquiſhed. Yet we learn by hiſtory, that the Greeks and Romans ſoon uſed themſelves to thoſe monſters of war; they opened their ranks to let them go through; they did not attempt to wound them, but threw all their darts againſt their leaders, who were obliged to turn all their attention to the elephant, when ſeparated from their troops. Now fire is become the element of war, and the principal inſtrument of death, elephants, who are afraid of noiſe and flame, would be rather an incumbrance in battle, and more dangerous than uſeful. The kings of India ſtill arm their elephants in war, but it is more for ſhew than real ſervice; yet they derive from theſe animals the ſame utility that ariſes from an army which is to enſlave their equals; they make uſe of them to ſubdue the wild elephants. The moſt powerful monarchs of the Indies have now above 200 elephants for war. They keep many others for different ſervices, and to carry the large cages in which their women travel; it is a perfectly ſafe way of travelling, for the elephant never ſtumbles; but time is required to be uſed to the motions of his pace. The beſt place is upon the neck, as there you ride more eaſy than on the ſhoulders or the back; but in war, or hunting, ſeveral men ride the ſame elephant: the conductor rides on his neck, and the hunters, or warriors, are placed on other parts of his body.

In thoſe happy regions, where our cannons and murdering arts are yet ſcarcely known, they fight ſtill upon elephants. At Cochin, and in the other parts of Malabar, they make no uſe of horſes, and all thoſe who do not fight on foot are mounted upon elephants. In Tonquin, Siam, and Pegu, the king and all the grandees ride upon elephants; on feſtival days they are preceded and followed by a great number of theſe animals, richly capariſoned, and covered with the richeſt ſtuffs. They ſurround their tuſks with gold and ſilver rings; they paint their ears and cheeks; they crown them with garlands, and their harneſs is ornamented with little bells; they ſeem to delight in a magnificent attire, and the more their trappings are rich and ſplendid the more they are chearful and careſſing. The elephants are only poliſhed to that degree in the Eaſt-Indies, for in Africa they can ſcarcely tame them. The Aſiatics, anciently civilized, have reduced the education of the elephant into a ſyſtem, and they have inſtructed and modified him according to their manners. But of all the Africans the Carthaginians were the only people who trained up the elephants to war, becauſe at the time of the ſplendor of their commonwealth they were, perhaps, more civilized than any other of the eaſtern nations. At this time no wild elephants are found in all that part of Africa on this ſide Mount Atlas; there are even few beyond thoſe mountains, as far as the river Senegal. But they are numerous in Senegal, in Guinea, in Congo, and on the Teeth Coaſt, in the countries of Anto, Acra, Benin, and all the other ſouthern parts of Africa, as far as the Cape of Good Hope, except ſome provinces very populous, ſuch as Fida, Ardra, &c. They are alſo found in Abyſſinia, in Ethiopia, in Nigritia, on the eaſtern coaſt, and in the inland parts of Africa. They are alſo in the great iſlands of India and Africa, ſuch as Madagaſcar, Java, and the Philippines.

After comparing the relations of travellers and hiſtorians, it ſeems that elephants are actually more numerous in Africa than in Aſia; they are there alſo leſs miſtruſtful, and not ſo ſhy, as if they knew the unſkilfulneſs and the little power of the men who inhabit this part of the world; they come daily without fear to their habitations, and treat the negroes with that natural and ſcornful indifference they have for other animals; they do not conſider thoſe men as powerful and formidable beings, but as a ſpecies whoſe ſkill conſiſts in laying ſnares, without having the courage to encounter them, and abſolutely ignorant of the art of reducing them into ſubjection. It is by this art known, from the earlieſt times, to the eaſtern nations, that their ſpecies is diminiſhed. The wild elephants, which they tame, become, by their captivity, as ſo many voluntary eunuchs, which daily drain the ſource of generation; but, on the contrary, in Africa, where they are all free, the whole ſpecies propagate, and all the individuals conſtantly concur to its increaſe. I do not know any other cauſe for this difference in their numbers, for, in conſidering the other effects, it ſeems the ſouth of India, and the eaſt of Africa, are the natural countries, and the moſt ſuitable to the elephant. He is there much larger and ſtronger than in Guinea, or in the other weſtern parts of Africa. He fears exceſſive heat, and never inhabits the burning ſands; he is moſt frequently found on the flat countries near the rivers, and never on the hilly parts of Africa; but in India the moſt powerful and the moſt courageous of the ſpecies, and who have the ſtrongeſt and longeſt tuſks, are the elephants of the mountains; they inhabit the high grounds, where the air being more temperate, the water more pure, and the food more wholeſome, they gradually arrive to the full perfection of their nature.

In general the elephants of Aſia are larger and ſuperior in ſtrength, to thoſe of Africa; particularly thoſe of Ceylon, and exceed in courage and ſagacity all thoſe of Aſia. Probably they owe theſe qualifications to their more improved education; it is, however, certain, that all travellers have celebrated the elephant of this iſland, where the ground is interſperſed with mountains, which riſe gradually towards the centre, and where the heat is not ſo exceſſive as in Senegal, Guinea, and other weſtern parts of Africa. The ancients, who knew no more of this part of the world, but the countries ſeated between Mount Atlas and the Mediterranean, had obſerved, that the elephants of Lybia were much ſmaller than thoſe of India. There are not any elephants at this time in that part of Africa, which proves, as mentioned in the article of the Lion, that men are more numerous there now than they were in the ages of Carthage. The elephants have retired in proportion as men have moleſted them; but in travelling through the climates of Africa, they have not changed their nature; for thoſe of Senegal, Guinea, &c. are at this time ſmaller than thoſe of India.

The ſtrength of theſe animals is proportionate to their bigneſs. The elephants of India carry with eaſe burdens of three or four thouſand pounds weight; the ſmalleſt, that is, thoſe of Africa, lift up freely with their trunks, burdens of two hundred weight, and place them on their ſhoulders, they take into their trunks a great quantity of water, which they throw out around them, at ſeven or eight feet diſtance, they can carry a weight of a thouſand pounds upon their tuſks; with their trunks they break off branches, and with their tuſks they root out trees. Their ſtrength may be judged of by their agility, comparatively to the bulk of their bodies; they can walk as faſt as a horſe goes on an eaſy trot; and they run as faſt as a horſe can gallop, which ſeldom happens in their wild ſtate, except when they are provoked or frightened. The tame elephants are commonly walked; they travel eaſily, and without fatigue, fifteen or twenty leagues a day; and, when hurried, they can travel thirty-five or forty. Their ſteps are heard at a great diſtance, and they may be followed by their tracks, for the marks they leave on the ground are fifteen or eighteen inches in diameter.

A domeſtic elephant does, perhaps, to his maſter more real ſervice than five or ſix horſes; but he requires much care, and abundance of good food; it is computed that he conſumes to the amount of an hundred pence per day. He is commonly fed with raw or boiled rice mixed with water; and it is reckoned he wants one hundred pounds of rice daily to be kept in his full vigour, they give him alſo graſs to cool him, for he is often over-heated, and muſt be led to the water that he may bathe two or three times a day; he eaſily learns to waſh himſelf; he takes the water up in his trunk, carries it to his mouth, drinks part, and then by elevating his trunk, lets the remainder flow over every part of his body. To give an idea of the ſervices he is able to perform, it is ſufficient to obſerve, that all the bags, bales, and parcels, which are tranſported from one place to another in the Indies, are carried by elephants; that they carry burdens on their bodies, their necks, their tuſks, and even with their mouths, by giving them the end of a rope which they hold with their teeth.

When the elephant is taken care of he lives a long time even in captivity; and it is to be preſumed, that in a ſtate of liberty his life is ſtill longer. Some authors ſay he lives four or five hundred years; others, two or three hundred; and others, one hundred and twenty, thirty, and even one hundred and fifty years. I take this laſt opinion to be the neareſt to the carry with eaſe burdens of three or four thouſand pounds weight; the ſmalleſt, that is, thoſe of Africa, lift up freely with their trunks, burdens of two hundred weight, and place them on their ſhoulders, they take into their trunks a great quantity of water, which they throw out around them, at ſeven or eight feet diſtance, they can carry a weight of a thouſand pounds upon their tuſks; with their trunks they break off branches, and with their tuſks they root out trees. Their ſtrength may be judged of by their agility, comparatively to the bulk of their bodies; they can walk as faſt as a horſe goes on an eaſy trot; and they run as faſt as a horſe can gallop, which ſeldom happens in their wild ſtate, except when they are provoked or frightened. The tame elephants are commonly walked; they travel eaſily, and without fatigue, fifteen or twenty leagues a day; and, when hurried, they can travel thirty-five or forty. Their ſteps are heard at a great diſtance, and they may be followed by their tracks, for the marks they leave on the ground are fifteen or eighteen inches in diameter.

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The common colour of the elephant is of aſh grey, or blackiſh. White ones, as we have obſerved, are extremely ſcarce: and ſome have been ſeen in the Indies of a reddiſh colour; theſe and the white are much eſteemed; but theſe varieties are ſo ſcarce, that they cannot be conſidered as a race diſtinct from the ſpecies, but rather as accidental qualities peculiar to individuals; for otherwiſe, the countries of the white, red, and black elephants would be known, as well as the climates of white, red,

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and black men, and thoſe of a copper colour. "Elephants of three different ſorts are found in the Indies, (ſays Father Vincent Marie) the white, which are the largeſt, moſt gentle, and of the beſt temper, are worſhipped as gods by ſeveral nations; the red, ſuch as thoſe of Ceylon, though the ſmalleſt, are the moſt valiant, the ſtrongeſt, and beſt for war, and the other elephants, either from natural inclination, or perceiving in them ſomething ſuperior, ſhew them a great reſpect; the third ſpecies, is that of the black, which are the moſt common, and the leaſt eſteemed." This author is the only one who has intimated that Ceylon was the peculiar climate of red elephants; other travellers make no mention of ſuch a fact. He alſo affirms, that the elephants of Ceylon are ſmaller than the others. Thevenot ſays the ſame thing in his voyage, but others aſſert the contrary. In fine, Father Vincent Marie is the only author who has ſaid the white elephants are the largeſt. Father Tachard aſſures us on the contrary, that the white elephant of the king of Siam was rather ſmall, though very old. After comparing the relations of travellers, in regard to the ſize of elephants in different countries, it ſeems, that the ſmalleſt are thoſe of the North and Weſt Africa, and that the ancients, who only knew the northern part of Africa, had ſome reaſon to ſay that, in general, the elephants of the Indies were much larger than thoſe of Africa. But in the eaſtern parts of this quarter of the world, unknown to them, the elephants are at leaſt as large as thoſe of India; for thoſe of Siam and Pegu excel in bulk the elephants of Ceylon; which, however, are the moſt courageous and intelligent, according to the unanimous opinion of travellers.

Having collected the different facts relative to the ſpecies, let us now examine minutely the faculties of the individual; his ſenſes, motion, ſize, ſtrength, addreſs, ſagacity, and intelligence. The elephant has very ſmall eyes, comparatively with his enormous ſize, but they are bright and lively; and what diſtinguiſhes them from the eyes of all other animals, is their pathetic ſentimental expreſſion, and an almoſt rational direction of all their motions. He turns them ſlowly and gently towards his maſter, and when he ſpeaks the animal has the appearance of liſtening to him with an eye of friendſhip and attention, and by an expreſſive glance ſeems to penetrate into his wiſhes, and anticipate his deſires. He ſeems to reflect, to think, and to deliberate, and never acts till he has examined and obſerved

ſerved ſeveral times, without paſſion or precipitation, the ſigns which he is to obey. Dogs, the eyes of which have much expreſſion, are animals too lively to allow us to diſtinguiſh their ſucceſſive ſenſations; but as the elephant is naturally grave and ſedate, we may read in his eyes, whoſe motions are ſlow, the order and ſucceſſion of his interior affections.

He has a quick hearing, and this organ is outwardly like that of ſmelling, more marked in the elephant than in any other animal. His ears are very large, even in proportion to his body; they are flat, and cloſe to the head, like thoſe of a man; they commonly hang down, but he raiſes and moves them with ſuch facility that he makes uſe of them to defend his eyes againſt the inconveniency of duſt and flies. He delights in the ſound of muſical inſtruments, and moves in exact time to the ſound of the trumpet and tabor. He has an exquiſite ſenſe of ſmelling, and he is paſſionately fond of perfumes of all ſorts, and eſpecially of fragrant flowers; he gathers them one by one, makes noſegays of them, which he ſmells with eagerneſs, and then carries to his mouth, as if he intended to taſte them. Orange flowers are one of his moſt exquiſite dainties; he ſtrips with his trunk an orange tree of all its verdure, eating the fruit, the flowers, the leaves, and even the young branches. He chuſes in meadows odoriferous plants, and in the woods he gives the preference to cocoa, palm, and ſago trees, and as theſe trees are pithy and tender he not only eats the leaves and fruits but even the branches, the trunk, and the roots, for when he cannot break the branches with his trunk, he roots up the trees with his tuſks.

In regard to the ſenſe of feeling, it centers in his trunk; but it is as delicate and as diſtinct in that as in the human hand. This trunk, compoſed of membranes, nerves, and muſcles, is, at the ſame time, a member capable of motion, and an organ of ſentiment. The animal can not only move and bend it, but he may ſhorten, lengthen, and turn it all ways. The extremity of the trunk terminates by a protuberance, which projects on the upper part like a finger, by which the elephant does the ſame as we do with our fingers; he picks up from the ground the ſmalleſt pieces of money; he gathers herbs and flowers, chuſing them one after another; he unties knots, opens and ſhuts doors, by turning the keys or ſlipping the bolts: he learns to draw regular characters with an inſtrument as ſmall as a pen. We cannot even deny that this hand of the elephant has ſeveral advantages over ours ; it is equally flexible and as dexterous in feeling or laying hold of objects. Theſe operations are made by means of that ſort of finger, ſeated at the ſuperior part of the border, which ſurrounds the extremity of the trunk, in the middle of which there is a concave, in the form of a cup, and at the bottom of it are the two apertures, which convey the ſenſe of ſmelling and reſpiration. The elephant, conſequently, unites in his trunk both the ſenſes of feeling and ſmelling ; and he may join the power of his lungs to the action of his hand, either drawing liquids by ſuction, or lifting up very heavy burdens, by applying the extremity of his trunk, and making within an empty place by reſpiration.

Thus the delicacy of feeling, exquiſitiveneſs of ſmelling, facility of motion and the power of ſuction, are united in the trunk of the elephant. Of all the inſtruments which Nature has ſo liberally beſtowed on her favourite productions, the trunk of the elephant is, perhaps, the moſt complete and the moſt admirable ; it is not only an organic inſtrument but a triple ſenſe, whoſe united functions are, at the ſame time, the cauſe, and produce the effect of that intelligence, and of thoſe peculiar faculties which diſtinguiſh the elephant, and raiſe him above all other quadrupeds. He is leſs ſubject than other animals to the errors of the ſight, becauſe he rectifies them quickly by the ſenſe of feeling; and, making uſe of his trunk as a long arm to feel diſtant bodies, he acquires, like men, diſtinct ideas of diſtance. But other animals (except the monkey, and ſome others, who have the fore feet ſimilar to arms and hands) cannot acquire the ſame ideas without running over that ſpace with their bodies. Feeling is, of all the ſenſes, that which is the moſt analogical to knowledge. The delicacy of feeling gives the idea of the ſubſtance of the bodies; the flexibility of the trunk gives the idea of their exterior form; the power of ſuction, that of their weight; ſmelling, that of their qualities; and its length that of their diſtance. They, therefore, with the ſame member, and by one ſimultaneous act the elephant feels, perceives, and judges of divers things at once. His multiplied ſenſations are equivalent to reflection; and though this animal is, like others, incapable of thinking, as his ſenſations are combined in the ſame organ, are coeval and undivided, it is not ſurpriſing that he has ideas of his own, and that he acquires in a little time thoſe we inculcate to him. His remembrance ſhould be more perfect than that of any other animal, for memory depends chiefly on the circumſtances of actions; and no ſenſation, however lively, can leave a laſting impreſſion, when ſingle and abſtractedly taken; but ſeveral combined ſenſations leave deep impreſſions, ſo that if the elephant cannot recal an idea by feeling alone, the ſenſations of ſmelling and ſuction, which acting at the ſame time, help him in recalling them to remembrance. With us the beſt method to improve the memory is to make uſe ſucceſſively of all our ſenſes to conſider an object; and it is for want of that combined uſe of the ſenſes that man forgets more things than he can recollect.

Although the elephant has a more retentive memory, and more intelligence than any other animal, his brain is proportionally ſmaller than moſt of them, which I only mention as a proof that the brain is not the ſeat of ſentiment, the *ſenſorium commune*, which reſides, on the contrary, in the nerves of the ſenſes, and in the membranes of the head, which are ſo numerouſly diſtributed on the trunk of the elephant, as to be equal to all thoſe on the reſt of the body. It is, therefore, by virtue of this ſingular combination of faculties in the trunk, that this animal is ſuperior to all others in intelligence, notwithſtanding his enormous ſize, and the diſproportion of his form; for the elephant is, at the ſame time, a miracle of intelligence, and a monſter of matter. His body is very thick, without any ſuppleneſs; his neck ſhort and ſtiff, his head ſmall and deformed, his ears and noſe exceedingly large; his eyes, mouth, genital members, and tail, very ſmall in proportion; his legs are like maſſive pillars, ſtrait and ſtiff; his feet ſo ſhort and ſmall, that they are hardly perceptible, and his ſkin hard, thick, and callous; all theſe deformities are more remarkable, from being exhibited on a large ſcale, and moſt of them being peculiar to himſelf alone, no other animal having either the head, feet, noſe, ears, or tuſks, placed like thoſe of the elephant.

From this ſingular conformation he ſuffers ſeveral inconveniencies; he can ſcarcely move his head, or turn back without making a circuit. The hunters who attack him behind, or on the flanks, avoid the effects of his vengeance by circular motions, and they have time ſufficient to ſtrike him again whilſt he is turning againſt them. His legs, which are not ſo ſtiff as his neck and body, yet bend very ſlowly, and with difficulty; their articulation with the thighs is very ſtrong. His knee is ſituated like that of a man, and his feet as low; but his foot has no ſtrength nor elaſtic power, and the knee is hard, without ſupplene∫s; yet whilſt the elephant is in his youth and vigour, he bends it to lay down, to let himſelf be loaded, or to help his leaders to mount him; but, when he is old or infirm, this motion becomes ſo difficult that he ſleeps ſtanding; and, if he is compelled to lay down, the uſe of engines are neceſſary to raiſe him. His tuſks, which become of an enormous weight when he grows old, not being ſeated in a vertical poſition, as the horns of other animals, form two long levers, and being in an almoſt horizontal direction, fatigue his head prodigiouſly, and draw it downwards, ſo that the animal is ſometimes obliged to make holes in the wall of his lodge to ſupport them, and eaſe himſelf of their weight. He has the diſadvantage of having the organ of ſmelling far diſtant from that of taſting; and the inconvenience of not being able to ſeize any thing on the ground with his mouth, becauſe his neck is too ſhort to let his head reach the earth; he is forced, therefore, to take his food, and even his drink with his noſe; and to carry it not only to the entrance of his mouth, but to his very throat ; and when his trunk is full of water, he thruſts the extremity of it to the very root of the tongue, probably to puſh back the epiglotis, and to prevent the liquor which paſſes through with impetuoſity, from entering into the larynx ; for he thruſts out the water by the ſtrength of the ſame air which he had employed to ſuck it up, and it goes out of the trunk with noiſe, and enters into the throat with precipitation. The tongue, the mouth, nor the lips, are of no ſervice to him, as to other animals, in ſucking or lapping his drink. From this deſcription ſeems to reſult the ſingular conſequence, that the young elephant muſt ſuck with his noſe, and afterwards carry the milk to his throat. Yet the ancients have written that he ſucks with the mouth, and not with the trunk ; but they were not, probably, witneſſes of the fact, and have founded their opinion on the analogy with all other animals. If the young elephant had once been uſed to ſuck with his mouth, how could he loſe that habit the remainder of his life ? Why does he never uſe the mouth to take water within his reach ? Why does he conſtantly employ two actions, where one would be ſufficient ? Why does he never take any thing with his mouth, but what is thrown in when it is open ?

open? It appears probable, therefore, that the young elephant ſucks with his trunk only. This preſumption is not only proved by the ſubſequent facts, but is alſo founded on a better analogy than that which decided the opinion of the ancients. We have ſaid, that animals in general, at the inſtant they are brought forth, can have no indication of the food they want, from any other ſenſe but that of ſmelling: the ear is certainly of no uſe in that reſpect; neither is the eye, ſince the eyes of moſt animals are not open when they begin to ſuck, feeling can give but a vague idea of all the parts of the mother's body, or rather indicates nothing relative to the appetite. Smelling alone directs him: it is not only a ſort of taſte, but a ſpecies of fore-taſte, which precedes, accompanies, and determines the other. The elephant, like other animals, perceives by this fore-taſte the preſence of his food; and as the ſeat of ſmelling is united with the power of ſuction at the extremity of his trunk, he applies it to the teats, ſucks the milk, and conveys it afterwards to his mouth to ſatisfy his appetite. Beſides, the two paps being ſeated on the breaſt, like thoſe of women, and the teats being very ſmall, in proportion to the ſize of the mouth of the young elephant, who cannot bend his neck, he could not reach the teat of the mother with his mouth, unleſs ſhe laid upon her back, or on her ſide, and even in that ſituation he would find it very difficult to ſuckle her, on account of the largeneſs of the mouth, and the ſmallneſs of the nipples. The margin of the trunk, which the elephant contracts as much as he pleaſes, is eaſily proportioned to the nipple, and the young elephant may ſuck his mother with it, either when ſhe ſtands, or lies on her ſide. Thus, every thing agrees to confute the opinion of the ancients on this ſubject, for none of them, nor even any of the moderns, pretend to have ſeen the elephant ſucking, and I think, I may affirm, that whenever that obſervation is made, it will appear, that he does not ſuck with his mouth, but with his trunk. I likewiſe believe, that the ancients have been miſtaken in telling us, that elephants couple like other quadrupeds, the poſition of the parts ſeeming to make it almoſt impoſſible. The female has not, like other quadrupeds, the orifice of the vagina near the anus, being near three feet diſtance from it, and ſeated almoſt in the middle of the belly. Beſides, naturaliſts and travellers agree that the male elephant has not the genital member longer than a horſe, and therefore it is impoſſible for them to copulate like other quadrupeds, and that the female muſt neceſſarily lie on her back, and which De Feynes and Tavernier poſitively affirm muſt be the fact. They require, therefore, for this operation, more time and conveniencies, than other animals; and it is, perhaps, for this reaſon they never couple, but when at full liberty. The female muſt not only conſent, but even place herſelf in an indecent ſituation, which, probably, ſhe never aſſumes but when ſhe thinks herſelf without witneſſes. Is not modeſty then a phyſical virtue of which animals are ſuſceptible? It is at leaſt like ſoftneſs, moderation, and temperance, a general attribute of the female ſex.

Thus the elephant neither ſucks, eats, or drinks, like other quadrupeds. The ſound of his voice is alſo very ſingular. If we believe the ancients, he has, as it were, two voices: the one iſſuing from the trunk, which is rough, and from the length of the paſſage is ſomewhat like that of a trumpet; and the other comes from his mouth, which is interrupted by ſhort pauſes and hard ſighs. This fact, advanced by Ariſtotle, and afterwards repeated by naturaliſts and ſome travellers, is at leaſt doubtful. M. de Buſſy affirms poſitively, that the elephant does not utter any ſounds through the trunk; yet as in ſhutting the mouth cloſe, man can make a ſound through the noſe, it is poſſible that the elephant, with ſo long a noſe may iſſue ſounds in the ſame manner. From wherever it proceeds, the cry of the elephant is heard at more than a league's diſtance ; and yet, it is not ſo terrifying as the roaring of the lion or the tiger.

The elephant is yet more ſingular by the conformation of his feet, and the texture of his ſkin. He is not cloathed with hair like other quadrupeds, but his ſkin is perfectly bare; ſome briſtles iſſue out in different parts, they are thinly ſcattered on the body, but more thick on they eye-lids, on the back part of the head, within the ears, the thighs, and the legs. In the epidermis there are two ſorts of wrinkles, ſome ſinking, others prominent, which gives a divided appearance, like the bark of an old oak. In man, and the other animals, the epidermis ſticks every where cloſe to the ſkin, but in the elephant, it is only faſtened by ſome points, like two quilted ſtuffs one above the other. This epidermis is naturally dry, and ſoon acquires three or four lines of thickneſs, by the divers cruſts, which are regenerated one above the other, drying up. It is this thickneſs of the epidermis which produces the like other quadrupeds, and that the female muſt neceſſarily lie on her back, and which De Feynes and Tavernier poſitively affirm muſt be the fact. They require, therefore, for this operation, more time and conveniencies, than other animals; and it is, perhaps, for this reaſon they never couple, but when at full liberty. The female muſt not only conſent, but even place herſelf in an indecent ſituation, which, probably, ſhe never aſſumes but when ſhe thinks herſelf without witneſſes. Is not modeſty then a phyſical virtue of which animals are ſuſceptible? It is at leaſt like ſoftneſs, moderation, and temperance, a general attribute of the female ſex.

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*elephantiaſis*, or dry dropſy, to which man, whoſe ſkin is bare like that of the elephant, is ſometimes ſubject. This diſtemper is very common to elephants, and to prevent it the Indians rub them often with oil, to preſerve the ſkin clean and ſupple. It is very tender wherever it is not callous; in the fiſſures, and other places, where it is neither dry nor hard, the elephant is ſo ſenſible of the ſting of the flies, that he not only employs his natural motions, but even the reſources of his intelligence to get rid of them. He makes uſe of his tail, ears, and trunk, to ſtrike them; he contracts his ſkin and ſqueezes them to death betwixt his wrinkles; he takes branches of trees, bows, and handfuls of ſtraw, to drive them away, and when all this anſwers not the purpoſe he gathers duſt with his trunk, and covers with it all the tender parts of his body. He often covers himſelf with duſt ſeveral times in a day, particularly after bathing. The uſe of water is almoſt as neceſſary to theſe animals as air. When at liberty they ſeldom leave the banks of rivers, but often go into them, and remain for hours together up to the belly. In India, where they are treated moſt ſuitable to their nature and conſtitution, they waſh them with care, and give them all the neceſſary time and opportunity to waſh themſelves. They clean their ſkins by rubbing it with pumice-ſtones, and afterwards they pour on them perfumed oil, and paint them with various colours.

The conformation of the elephant's feet and legs is alſo different from that of other animals; the fore legs ſeem to be higher than thoſe behind, yet the hind legs are the longeſt; they are not bent in two places, like the hind legs of a horſe, or an ox, the thigh-bones of which ſeem to be of the ſame piece with the buttock, their knee is very near the belly, and the bones of the foot ſo high and ſo long that they ſeem to make a great part of the leg; in the elephant, on the contrary, the foot is very ſhort, and reſts on the ground; he has the knee like man, in the middle of the leg; his ſhort foot is divided into five toes, which are all covered with a ſkin, ſo as not to appear outwardly; we are only able to perceive a kind of nails, the number of which varies, though that of the toes is conſtant, for he has always five toes to each foot, and commonly five nails, but ſometimes he has no more than four, or even three, and in this caſe they do not correſpond exactly with the extremities of the toes. Beſides, this variety, which has only been obſerved in young elephants tranſported to Europe, ſeems to be merely accidental, and depends, probably, on the treatment the elephant has received in his youth. The ſole of the foot is covered with a ſkin, as hard as the hoof, which projects all around; the nails are formed of the ſame ſubſtance.

The ears of the elephant are very long; he makes uſe of them as a fan, and moves them as he pleaſes: his tail is not longer than his ears, being commonly near three feet in length; it is rather thin, ſharp, and garniſhed at the extremity with a tuft of large black, ſhining, and ſolid briſtles; theſe briſtles are as big and as ſtrong as wire, and a man cannot break them by pulling with his hands, though they are elaſtic and pliant. This tuft of hair is an ornament which the negro women are particularly partial to, from ſuperſtitious notions. An elephant's tail is ſometimes ſold for two or three ſlaves, and the negroes often hazard their lives to cut and ſnatch it from the living animal. Beſide this tuft at the extremity, the tail is covered throughout with hard briſtles, bigger than thoſe of a wild boar; ſome are alſo found on the convex part of the trunk, or on the eye-brows, where they ſometimes are a foot in length. The hairs on the eye-lids are peculiar to men, monkies, and elephants.

The climate, food, and a ſervile condition, have great influence on the growth and ſize of the elephant. In general thoſe who are taken young, and early loſe their liberty, never come to their full growth. The biggeſt elephants of India, and the eaſtern coaſts of Africa, are fourteen feet high; the ſmalleſt, which are found in Senegal, and in the other weſtern parts of Africa, are not above ten or eleven feet; and thoſe which are brought young into Europe acquire not that height. That which was in the menagerie of Verſailles, which came from Congo, was but ſeven feet and a half high, in his ſeventeenth year. During thirteen years that he lived in France he did not grow above a foot, ſo that at the age of four, when he was ſent he was only ſix feet and a half high, and as the growth gradually diminiſhes as animals advance in years, if he had lived thirty years, which is the ordinary term of their full growth, he would not have been more than eight feet high. Thus a domeſtic ſtate reduces the growth of the animal at leaſt one third, not only in height but in all other dimenſions. The length of the body, meaſured from the eye to the tail, is very near equal to his height; an elephant of the Indies, therefore, of fourteen feet high, is ſeven times bigger and heavier than was the elephant of Verſailles. In comparing the growth of this animal with that of man we ſhall find, that an infant, being commonly thirty-one inches, that is half his height when he is two years old, and coming to his full growth at twenty, the elephant, who increaſes in height and bulk till his thirtieth year, ſhould come to half his height in three years. In the ſame manner, if we judge of the enormity of the bulk of the elephant, it will be found, that the volume of a man's body being ſuppoſed to be two cubic feet and a half, the body of an elephant of fourteen feet in length, allowing him only three feet in thickneſs, and of a middling breadth, would be fifty times as big, and, conſequently, an elephant ought to weigh as much as fifty men.

"I have ſeen (ſays Father Vincent Marie) ſome elephants who were fourteen or fifteen feet high, long and thick in proportion. The male is always larger than the female. The price of theſe animals increaſes in proportion to their ſize, which is meaſured from the eye to the extremity of the back, and after exceeding certain dimenſions, the price increaſes like that of precious ſtones."

"The elephants of Guinea (ſays Boſman) are ten, twelve, or thirteen feet in height, and yet they are incomparably ſmaller than thoſe of the Eaſt-Indies, ſince thoſe who have written the hiſtory of that country, give to thoſe more cubits in height, than the others have feet."

"I have ſeen elephants thirteen feet high, (ſays Edward Terry) and I have met with many men, who affirmed they have ſeen elephants fifteen feet high *."

From theſe, and many other atteſtations, we may conclude, that the moſt common ſize of the elephant is from ten to eleven feet; that thoſe of thirteen or fourteen feet are very ſcarce, and that the ſmalleſt are at leaſt nine feet high when they come to their full growth in a ſtate of liberty. Theſe enormous lumps of matter, as we have obſerved, move with much celerity; they are ſupported by four members, which are more like pillars, or maſſive columns, than legs, and are from fifteen to eighteen inches in diameter, and five or ſix feet in height; their legs are therefore twice as long as thoſe of a man; thus

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* Theſe authors probably referred to different meaſures, the firſt meaning Roman, the ſecond Rheniſh, and the laſt Engliſh feet.

thus, though the elephant took but one ſtep to a man's two, he would overtake him in running. The common pace of the elephant is not ſwifter than that of the horſe; but when he is preſſed, he goes a ſort of amble, equivalent for quickneſs to a gallop. He executes with ſpeed, and even with eaſe, all direct motions; but he has no facility in turning back or obliquely. It is commonly in narrow and deep roads, where he can hardly turn, that the negroes attack him, and cut off his tail, which they value as much as the whole animal. He cannot go down a ſteep declivity without much difficulty, he is then obliged to bend the hind legs, in order to keep the fore part of his body on a level with his hind, and that his own weight may not throw him down. He ſwims well, though the form of his legs and feet ſeem to indicate the contrary; but as the capacity of his breaſt and belly is very large, as the volume of the lungs and inteſtines is enormous, and as thoſe parts are full of air, or matter lighter than water, he ſinks leſs deep than any other animal; he finds leſs reſiſtance to overcome, and, conſequently, can ſwim faſter in making leſs efforts with his limbs. Thus, he is very uſeful for croſſing rivers; beſides two field-pieces, commonly three or four pounders, with which he is loaded on theſe occaſions, he carries heavy baggage, and ſeveral perſons holding him by the ears and tail. When thus loaded, he ſwims deep in the water, and nothing is ſeen but his trunk, which he keeps erect to enable him to breathe.

Though the elephant commonly feeds on herbs and young branches, and requires prodigious quanties of theſe aliments, to extract from them the nutrition neceſſary to ſuch a body, yet he has not many ſtomachs, like moſt animals who feed on the ſame ſubſtances. He has but one ſtomach, does not ruminate, and is rather formed like the horſe than the ox, or other ruminating animals. The want of a paunch is ſupplied by the bigneſs and length of his inteſtines, and eſpecially of the colon, which is two or three feet in diameter, and fifteen or twenty in length. The ſtomach is much ſmaller than the colon, being but four feet, at the moſt, in length, and a foot and a half in diameter. To fill ſuch a capaciouſneſs, the animal muſt eat almoſt continually, eſpecially when he has no food more ſubſtantial than herbage; therefore the wild elephants are almoſt always employed in grubbing up trees, gathering herbs, or breaking young boughs; and thoſe that are tame, though fed with great quantities of rice, pluck up herbs whenever they ſind an opportunity. However great the appetite of the elephant, he eats with moderation, and his taſte for cleanlineſs gets the better of his wants. His dexterity in parting, with his trunk, the good leaves from the bad, and the care he takes to ſhake off the ſand or inſects, are convincing marks of his delicacy. He is very fond of wine, ſpirituous liquors, brandy, and arrack. He is prevailed upon to exert his greateſt efforts, and to undertake the moſt arduous taſk, by ſhewing him a veſſel full of theſe liquors, and promiſing it to him as the reward of his labours. He ſeems alſo to like the ſmoke of tobacco, but it ſtupifies and intoxicates him ; he has a natural averſion to bad ſmells, and ſuch an antipathy for hogs, that the cry of that animal diſorders and puts him to flight.

To give a complete idea of the nature and intelligence of this ſingular animal, I ſhall inſert here ſome particulars communicated to me by the Marquis de Montmirail, Preſident of the Royal Academy of Sciences, who has taken the trouble to tranſlate from ſome Italian and German books, (a taſk to which I was not adequate) whatever relates to the hiſtory of the animalcreation. His taſte for arts and ſciences, his zeal for the advancement of them, his exquiſite judgment, and a very extenſive knowledge of all the parts of Natural Hiſtory, entitle him to the greateſt reſpect, and it is with pleaſure and gratitude I refer to the information he has given me, and which I ſhall have frequent occaſion to refer to in the ſubſequent part of this work:—" They make uſe of the elephant to carry artillery over mountains; and it is then that he gives the greateſt proofs of his intelligence: when the oxen, yoked together, endeavour to draw a piece of artillery up a mountain, the elephant puſhes the breach of the cannon with his forehead, and at every effort, he ſupports the carriage with his knee, which he places againſt the wheel. He ſeems as if he underſtood what is ſaid to him. When his leader employs him in ſome hard labour, he explains what is his work, and the reaſons which ought to engage him to obey. If the elephant ſhews an averſion to comply, the *cornack*, ſo his leader is called, promiſes to give him arrack, or ſome other thing that he likes; then the animal agrees to every thing propoſed; but it is dangerous to break a promiſe with him, as many cornacks have fallen victims by ſuch conduct. An inſtance of this happened at Decan, which deſerves to be recorded;

corded ; and however incredible it may appear it is perfectly true. An elephant, in revenge, killed his cornack, the man's wife being witneſs of this dreadful cataſtrophe, took her two children and threw them to the feet of the ſtill enraged animal, ſaying, *Since thou haſt killed my huſband take alſo my life, and that of my children.* The elephant ſtopped ſhort, grew calm, and, as if moved with regret and compaſſion, took with his trunk the biggeſt of the two children, placed him on his neck, adopted him for his cornack, and would never ſuffer any other to mount him afterwards.

" If the elephant is vindictive he is no leſs grateful. A ſoldier at Pondicherry, who commonly gave one of theſe animals a certain meaſure of arrack every time he received his pay, having one day drank more than common, and ſeeing himſelf purſued by the guard, who wanted to conduct him to priſon, took refuge under the elephant, and there fell aſleep. In vain did the guard attempt to draw him out from this aſylum, the elephant firmly defending him with his trunk. The next day, when the ſoldier became ſober, he was ſtruck with terror to find himſelf under an animal of this enormous bulk. The elephant, who, no doubt perceived his conſternation, careſſed him with his trunk, and made him underſtand that he might depart freely.

" The elephant falls ſometimes into a ſort of phrenzy, which depriveshim of his tractability, and makes him ſo formidable that it is frequently thought neceſſary to kill him, though they generally tie him with heavy chains, in hopes that he will come to himſelf; but when in his natural ſtate the moſt acute pains cannot provoke him to do any harm to thoſe who have not offended him. An elephant, made furious by the wounds he had received in the battle at Hambour, ran about the field crying out in the moſt hideous manner. A ſoldier, notwithſtanding the warning of his companions, was unable to fly, perhaps from being wounded ; the elephant coming up to him appeared afraid of trampling him under his feet, took him up with his trunk, placed him gently on one ſide, and continued his march." Theſe particulars were given to the Marquis Montmirail by M. de Buſſy, who lived ten years in India, and ſerved the ſtate with reputation. He had ſeveral elephants in his ſervice ; he mounted them often, ſaw them every day, and had frequent opportunities of obſerving many others.

The gentlemen of the Academy of Sciences have alſo communicated to us the following facts, which they learned from thoſe who governed the elephant at Verſailles, and which deſerve to be mentioned here. " The elephant ſeemed to diſcern when any body made a fool of him, and he remembered the affront to be revenged the firſt opportunity. A man deceived him by feigning to throw ſomething into his mouth, upon which the animal gave him ſuch a blow with his trunk as broke two of his ribs; having knocked him down, he trampled him under his feet, and broke one of his legs, and then kneeling down, he tried to thruſt his tuſks into the man's belly, which, however, went into the ground on both ſides of his thigh, without hurting him. He bruiſed another man, by ſqueezing him againſt the wall, for a little mockery. A painter was deſirous to draw him in an unuſual attitude, with his trunk erect and his mouth open; the ſervant of the painter, to make him remain in that attitude, threw fruits into his mouth, but often deceived him, which provoked his indignation, and, as if he knew the painter was the cauſe of his being thus inſulted, without taking any notice of the ſervant, he threw ſuch a quantity of water with his trunk upon the paper, the maſter was drawing on, as totally to ſpoil the deſign. The elephant made leſs uſe of his ſtrength than of his addreſs, which was ſuch that he untied with great facility a double leather ſtring which faſtened his leg, and as this buckle had a ſmall ſtring twiſted around it with ſeveral knots, he untied them all without breaking either the ſtrings or the ſtrap. One night, having thus diſentangled himſelf from his leather ſtrings, he dexterouſly broke open the door of his lodge, ſo that his keeper was not awakened by the noiſe; he went from thence into ſeveral courts of the menagerie, breaking open the doors that were ſhut, and pulling down the ſtone work when the paſſage was too narrow for him to paſs; by this means he got into the lodges of other animals, terrifying them to that degree, that they hid themſelves in the remoteſt parts of the incloſures." In fine, to omit nothing that may contribute to make all the natural and acquired faculties of this animal perfectly known, we ſhall add ſome facts, extracted from the moſt credible authors. " The elephant, even when wild (ſays Father Vincent Marie), has his virtues. He is generous and temperate; and when tamed he is eſteemed for gentleneſs and fidelity to his maſter, and friendſhip for his governors. If deſtined to the immediate ſervices of princes he knows his fortune, and preſerves a gravity agreeable to the dignity of his employ. If, on the contrary, he is employed in mean labours, he evidently grieves and laments his being thus debaſed. In war he is impetuous and proud at the firſt onſet; he is equally ſo when ſurrounded by hunters, but he loſes courage when he is conquered. He fights with his tuſks, and fears nothing ſo much as loſing his trunk, which, by its conſiſtence, is eaſily cut off. He is naturally mild, never attacks any perſon, unleſs he has been offended; he ſeems to delight in company, is particularly fond of children, careſſes them, and ſeems to be ſenſible that they are harmleſs and innocent."

"The elephant, (ſays F. Pyrard) is an animal of ſo much judgment and knowledge, that one ſhould think him endowed with rational faculties; beſides, being of infinite ſervice to man. If wanted to be ridden, he is ſo ſupple, and obedient, that he conforms to the conveniency and quality of the perſon he ſerves; he bends his knees, and helps his leader to mount him with his trunk. He is ſo tractable, that he does whatever he is required, provided he is treated with gentleneſs. He does whatever he is bid, and careſſes thoſe whom he is directed to uſe with civility."

" By giving the elephants (ſays the Dutch travellers) whatever can pleaſe them, they are as eaſily tamed and rendered ſubmiſſive as men. It may be ſaid they want no other faculty, but that of ſpeech. They are proud and ambitious, but they remember good offices, and are ſo grateful for them, that they never fail to incline their head as a mark of reſpect, when they paſs before a houſe where they have been well uſed. They may be conducted at the command of a child, but they love to be praiſed and cheriſhed. No perſon can affront or injure them without their notice; and thoſe who have treated them with diſreſpect may think themſelves happy if they eſcape with being ſprinkled with the water from their trunks, or thrown into the dirt."

" The elephants (ſays Father Philip) come very near the human ſpecies in judgment and reaſoning. Monkies are ſtupid brute animals compared to them. The elephants are ſo modeſt, that they cannot bear being ſeen when they couple; and if by chance any perſon was to ſee this operation, they would infallibly be revenged of them. They ſalute by bending the knees, and inclining their head; and when their maſter ſhews his intention to mount them, they ſo dexterouſly preſent to him their foot, that he may uſe it as a ſtep. When a wild elephant is taken, and his feet are tied, one of the hunters comes near, ſalutes, makes an apology for having tied, and proteſts that his intention is not to do him any harm; tells him that in his ſavage ſtate he often wanted food, but now he will be treated with tenderneſs, and which he promiſes to do conſtantly. The hunter has no ſooner finiſhed this ſoothing diſcourſe, than the elephant follows him as gently as a lamb. We muſt not, however, conclude from this, that the elephant underſtands languages, but only having a particular diſcerning faculty, he knows the motions of eſteem from contempt, friendſhip from hatred, and all other ſentiments of man towards him, for which cauſe he is more eaſily tamed by reaſoning than by blows. He throws ſtones to a great diſtance, and very ſtrait, with his trunk; which he alſo makes uſe of to pour water over his body when bathing."

" Of five elephants, (ſays Tavernier) which the hunters had taken, three eſcaped, although their bodies and legs were faſtened with chains and ropes. Theſe men told us the following ſurpriſing circumſtance, if it can be believed, that when an elephant has been caught, and eſcaped the ſnare, he becomes very miſtruſtful, and breaks off a large branch with his trunk, with which he ſounds the ground before he puts his foot upon it, to diſcover if there are are any holes, by which he may be caught a ſecond time; for this reaſon, the hunters, who related this ſingularity, deſpaired of catching again the three elephants who had eſcaped. The other two which they had caught, were each of them placed betwixt two tame elephants, and around them were ſix men, holding torches, who ſpoke to the animals, and preſented them ſomething to eat, ſaying, in their language, " take this and eat it." What they gave them conſiſted of ſmall bundles of hay, bits of black ſugar, and rice boiled in water, with pepper. When the wild elephant refuſed to do what he was ordered, the men commanded the tame elephants to beat him, which they did immediately; one ſtriking his forehead, and when he ſeemed to aim at a revenge, the other ſtruck him on the ſide, ſo that the poor creature ſoon perceived he had nothing to do, but to obey."

" I have ſeveral times obſerved, (ſays Edward Terry) that the elephant does many things which were more an indication of reaſoning than a natural inſtinct. He does whatever his maſter commands him. If he wiſhes to frighten any body, he advances towards him with the ſame fury as if he would tear him to pieces, and when he comes near he ſtops ſhort, without doing him any harm. If the maſter is inclined to affront another, he ſpeaks to the elephant, who takes up dirty water with his trunk, and throws it over the perſon pointed out to him. His trunk is made of a cartilage, hangs betwixt his tuſks, and is by ſome called his hand, becauſe on many occaſions it is as ſerviceable to him as the hand is to men. The Mogul keeps elephants for the execution of criminals condemned to death. If their leader bids them to diſpatch the wretched creatures quickly, they tear them to pieces in a moment with their feet; but if commanded to make the criminals languiſh, they break their bones one after another, and make them ſuffer torments as cruel as thoſe of the wheel."

We might quote ſeveral other facts equally curious and intereſting, but we ſhould exceed the limits of this work; we ſhould not have even entered into ſo many particulars, if the elephant *(fig.* 133.*)* was not, of all animals, the firſt in every reſpect, and that which conſequently deſerves moſt attention.

M. Daubenton has made ſeveral uſeful obſervations upon the nature and quality of the ivory, and has aſſigned to the elephant the tuſks, and prodigious bones attributed to the mammouth. I confeſs I was long doubtful on this ſubject; I had ſeveral times conſidered theſe enormous bones, and compared them with the ſkeleton of an almoſt adult elephant, preſerved in the king's cabinet, and before writing the hiſtory of thoſe animals, I could not perſuade myſelf that elephants ſix or ſeven times bigger than the one whoſe ſkeleton I had ſeen, could exiſt; beſides, as the large bones had not the ſame proportions with the correſponding ones of the elephant, I thought with the generality of naturaliſts, that theſe enormous bones had belonged to an animal much larger, whoſe ſpecies was loſt or annihilated. But it is certain, as we have mentioned before, that ſome elephants exiſt who are fourteen feet high, that is, ſix or ſeven times bigger (for the bulk is in proportion to the cube in height) than the elephant, the ſkeleton of which we have ſpoken of, and which was not more than ſeven feet and a half in height. It is alſo certain, from the obſervations of M. Daubenton, that age changes the proportion of the bones, and when the animal is adult, they grow conſiderably thicker, though they are come to their full height: in fine, it is certain, from the relations of travellers,

vellers, that of ſome elephants, the tuſks weigh more than 120lbs *. From theſe obſervations, we cannot doubt that thoſe tuſks and bones we have already noticed for their prodigious ſize, actually belonged to the elephant. Sir Hans Sloane was of that opinion, but he did not prove it. M. Gmelin ſaid it ſtill more affirmatively, and gave on this ſubject ſeveral curious facts †; but M. Daubenton is the firſt who has proved them unqueſtionably

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* M. Eden ſays, that ſeveral elephants' tuſks which he meaſured, were no leſs than nine feet long, and as big as a man's thigh in circumference, ſome of them weighing more than nine pounds; and that he ſaw a head in the poſſeſſion of a Mr. Judde, which had been brought from Guinea by ſome Engliſh ſhips, which the mere bones, without the tuſks, weighed upwards of 200lbs. and it was ſuppoſed that when the head was entire it could not weigh leſs than 500lbs.—Lopes affirms he met with ſeveral tuſks that weighed 200lbs. *Hiſt. Gen. des Voyages.* This magnitude of the tuſks is alſo confirmed by Drake, Holbe, and the Dutch travellers.

† The Czar Peter, being curious in Natural Hiſtory, iſſued orders in the year 1772, that wherever any bones of the mammouth ſhould be found, ſearch ſhould be made after the remainder, and the whole of them ſent to Peterſburgh, and which orders were made public in all the towns of Siberia. In conſequence of this ſeveral perſons applied to the Woywode of Jakutzk to be ſent off to different places, where they affirmed they had ſeen theſe bones; their demands were complied with, and many of them returned with heads and various bones, which were tranſmitted to Peterſburgh, and

queſtionably by exact meaſures and compariſons, and reaſons founded on the great knowledge that he has acquired in the Science of Anatomy.

## SUPPLEMENT.

THE female elephant, as in all other animals, is more gentle than the male, at leaſt we found it ſo, for the male which we ſaw in 1771, was more fierce and untractable than a female we witneſſed in 1773; he would frequently lay hold of, and tear the cloaths of thoſe who approached too near him, and even his keepers were always obliged to be on their guard,

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and placed in the Imperial cabinet; but it will be found upon examination that all the bones placed there, under the denomination of the Mammouth bones, are perfectly ſimilar with thoſe of the elephant. And as to their being found under the earth and in Siberia, it may fairly be preſumed that in the great revolutions which have happened to the earth, a great number of elephants might have been driven from their native climates; many have been deſtroyed by the inundations, and thoſe who wandered ſo far into the North muſt neceſſarily have periſhed from the rigours of the climate. *Voyage à Kamtſchatka par M. Gmelin.*

guard, while ſhe was perfectly quiet, and always ready to obey, nor ever ſhewed a diſpoſition to be perverſe but when they wanted to put her into a covered waggon for the purpoſe of conveying her from one town to another; upon which occaſions ſhe would refuſe to go forward, and they had no means of making her advance but by pricking her behind; this would make her very angry, and being unable to turn, the only way ſhe had of revenge was to take up water in her trunk and throw it over them, and which ſhe would do in pretty large quantities.

I formerly remarked, there was a probability, from the ſituation of the ſexual organs, that theſe animals do not copulate in the ſame manner as other quadrupeds, but this conjecture I underſtand is not warranted in fact, for M. Marcel Bles thus expreſſes himſelf upon the ſubject: “The Comte de Buffon, in his excellent work, is deceived in reſpect to the copulation of the elephants. In many parts of Aſia and Africa they certainly, during their ſeaſons of love, retire into the moſt ſecret receſſes of the foreſts; but in the iſland of Ceylon, which is almoſt in every part inhabited, and where I have lived twelve years, they have not that opportunity of concealing themſelves.

I have frequently examined them, and from the female organ being nearly in the middle of the belly there is ſome reaſon to conclude as M. de Buffon has done; however, when inclined to admit the male, I have ſeen the female bend her two fore legs upon the root of a tree, lowering, at the ſame time, her head and neck, and keeping her hind legs erect, which gave the male an opportunity of acting in the ſame manner as other quadrupeds. They never copulate but in a ſtate of freedom. The males are very furious in the rutting ſeaſon, and it is very dangerous to go near them; during which the females will ſometimes make their eſcape, and ſeek the wild males in the woods. A few days after her cornack goes into the woods in ſearch of her, and ſhe will come to him upon hearing him call her by name, and quietly ſuffer herſelf to be led home again. It was from theſe excurſions diſcovered that the females bring forth at the end of nine months."

I certainly am ready to give full credit to the firſt remark of M. Marcel Bles, becauſe he aſſures us that he has ſeen the elephant perform the operation; but I cannot think we ought ſo perfectly to acquieſce as to the time of their going with young, ſince it is the opinion of all travellers that they do not bring forth in a leſs period than two years.

## THE RHINOCEROS.

AFTER the elephant the Rhinoceros *(fig. 124.)* is the moſt powerful of quadrupeds; he is at leaſt twelve feet in length, from the extremity of the ſnout to the tail; ſix or ſeven feet in height, and the circumference of his body is nearly equal to his length. In bulk, therefore, he nearly reſembles the elephant, and if he appears ſmaller it is becauſe his legs are ſhorter in proportion than thoſe of the elephant. But if he differs widely from that ſagacious animal by his natural faculties and intelligence, having received from Nature merely what ſhe grants in common to all animals. He is deprived of all feeling in his ſkin, having no organ to anſwer the purpoſe of hands, to give him a diſtinct ſenſe of touching; inſtead of a trunk he has only a moveable lip, in which centers all his dexterity. He is ſuperior to other animals only in ſtrength, magnitude, and the offenſive weapon, which he carries upon his noſe, and which is peculiar to him. This weapon is a very hard horn, ſolid throughout, and placed more advantageouſly than the horn of ruminating animals; thoſe only protect the ſuperior parts of the head and neck, whilſt the horn of the rhinoceros defends all the exterior parts of the muzzle, the mouth, and the face, from inſult. For this reaſon the tiger attacks more readily the elephant, whoſe trunk he can ſeize, than the rhinoceros, which he cannot attack in front without running the danger of having his inſide torn out; for the body and limbs are covered with ſo impenetrable a ſkin that he fears neither the claws of the tiger nor lion, nor the fire and weapons of the hunſman. His ſkin is blackiſh, of the ſame colour, but thicker and harder than that of the elephant; nor does he feel the ſting of flies. He cannot contract nor extend his ſkin; it is folded by large wrinkles on the neck, ſhoulders, and rump, to facilitate the motion of his head and legs, which laſt are maſſive, and terminated by large feet, armed with three great toes. His head is larger in proportion than that of the elephant, but his eyes are ſtill ſmaller, which he ſeldom opens entirely. The upper jaw projects above the lower, and the upper lip is moveable, and may be lengthened ſix or ſeven inches; it is terminated by a ſharp edge, which gives the animal a power to gather graſs and divide it into handfuls, as the elephant does with his trunk. This muſcular and flexible lip is a ſort of trunk very incomplete, but is equally calculated for ſtrength and dexterity. Inſtead of thoſe long ivory tuſks, which form the weapons of the elephant, the rhinoceros has a powerful horn, and two ſtrong inciſive teeth in each jaw : theſe teeth, which the elephant has not, are placed at a great diſtance, one in each corner or angle of the jaws : the under jaw is ſquare before, and there are no other inciſive teeth in all the interior part, which is covered by the lips ; but, independent of theſe four inciſive teeth, placed in the four corners of the mouth, he has twenty-four ſmaller teeth, ſix on each ſide of each jaw. His ears are always erect ; they are in form like thoſe of the hog, only they are ſmaller in proportion to his body, and they are the only hairy parts about him. The end of the tail, like that of the elephant, is furniſhed with a tuft of large briſtles, very hard and very ſolid.

Mr. Parſons, a celebrated phyſician in London, to whom the republic of letters is indebted for ſeveral diſcoveries in Natural Hiſtory, and to whom I am under obligations for the marks of eſteem and friendſhip he has honoured me with, publiſhed in 1744, a Natural Hiſtory of the Rhinoceros, of which I ſhall give an extract with more willingneſs, becauſe whatever Mr. Parſons has written deſerves credit and attention.

" Though the rhinoceros was often ſeen at the ſpectacles at Rome, from the time of Pompey to that of Heliogabalus, though many have been tranſported into Europe in thoſe laſt ages, and though Botius, Chardin, and Kolbe, have drawn his figure, both in the Indies and Africa, yet he was ſo badly repreſented, and his deſcription was ſo incorrect, that he was known very imperfectly, until thoſe which arrived in London in 1739 and 1741, were inſpected, when the errors or caprices of thoſe who had publiſhed figures of him became very viſible. That of Albert Durer, which was the firſt, and alſo the leaſt conformable to Nature ; that figure has, nevertheleſs, been copied by moſt naturaliſts ; ſome of them have loaded it with falſe drapery, and foreign ornaments. That of Botius is more ſimple and more true ; but the inferior part of the legs is hardly delineated. On the contrary, that of Chardin repreſents naturally the foldings of the ſkin and the feet, but in other reſpects does not reſemble the animal.

mal. That of Camerarius is not better; no more is that drawn from the rhinoceros which was in London in 1685, and which was publiſhed by Carwitham in 1739. Thoſe which were engraved on the pavement of Præneſte, or on the medals of Domitian, are very imperfect: but they have not the imaginary ornaments given to that of Albert Durer." Dr. Parſons has taken the trouble to draw this animal himſelf in three different views, before, behind, and in profile; and particular parts from other rhinoceroſſes which are preſerved in the cabinets of Natural Hiſtory.

The rhinoceros which arrived in London in 1739, was ſent from Bengal: though not more than two years old, the expences of his food, and of his voyage, amounted to near one thouſand pounds ſterling. He was fed with rice, ſugar, and hay; they gave him daily ſeven pounds of rice, mixed with three pounds of ſugar, which they divided into three portions: he had alſo hay and green herbage, to the laſt of which he gave the preference. His drink was water, of which he drank great quantities at a time. He was of a quiet diſpoſition, and ſuffered all parts of his body to be felt. He grew unruly upon being ſtruck, or when he was hungry; and in both caſes he could only be appeaſed by giving him ſomething to eat. When he was angry he leaped forwards with impetuoſity, and raiſed himſelf to a great height, and ruſhed furiouſly againſt the walls with his head, and which he did with a prudigious quickneſs, notwithſtanding his heavy appearance and maſſive corpulence. "I have often been witneſs (ſays Dr. Parſons) of thoſe motions produced by impatience or anger, eſpecially in the morning before his rice and ſugar were brought him. The quickneſs and celerity of the motions of this animal made me of opinion that he is abſolutely unconquerable, and that he would eaſily overtake any man who ſhould have given him offence."

This rhinoceros, when two years old, was not higher than a young cow who had never had any young; but his body was very long and very thick. His head was large in proportion to his body; taking it from the ears to the horn of the noſe, it formed a concavity, the extremities of which, that is, the upper end of the ſnout, and the part near the ears are very high. The horn, not then an inch long, was black, ſmooth at the end, but wrinkled and directed backwards at the baſe. His noſtrils were not above an inch from the mouth; the under lip was like that of an ox, but the upper reſembled that of an horſe, with this difference and advantage, that the rhinoceros can lengthen, direct, turn it round a ſtick, and ſeize with it thoſe objects which he wants to carry to his mouth. The tongue of this young rhinoceros was ſoft like that of a calf; his eyes have no vivacity, they were formed like thoſe of a hog, and were placed very low, that is, near the opening of the noſtrils. His ears were large, thin towards the end, and bound up with a ſort of wrinkle at the origin. His neck was very ſhort, the ſkin forming on this part two large foldings which ſurround him. His ſhoulders were very thick, and at their juncture there was another fold of ſkin which comes under the fore legs. The body of this young rhinoceros was very thick, and reſembled that of a cow ready to bring forth. There was another fold betwixt the body and the rump, which deſcends under the hind legs; and laſtly, there was another fold which tranſverſally ſurrounds the lower part of the crupper, at ſome diſtance from the tail. The belly was very big, and hung down to the ground, eſpecially the middle part; the legs were round, thick, ſtrong, and bent backward at the joint, which was covered by a remarkable fold of the ſkin when the animal laid down, but it diſappears when he was ſtanding. The tail thin and ſhort, comparatively to the volume of his body; that of this rhinoceros was not above ſeventeen inches in length; it is little thicker at the extremity, which is covered with hard, ſhort, and thick hair. The ſexual organ of the rhinoceros is of an extraordinary form; it is contained in a ſort of caſe, like that of a horſe, and the firſt thing which appears when irritated is a ſecond prepuce of fleſh colour, from which iſſues a hollow pipe, in form of a funnel, like a fleur de luce. It not being in a ſtraight direction, but rather inclining backward, he emits his urine behind, and from which it appears their copulation muſt be different from other animals. The female has the exterior parts ſituate like thoſe of the cow, and ſhe reſembles perfectly the male in the ſize and form of the body. The ſkin is thick and impenetrable; in taking the folds with the hands, it feels like a wooden plank half an inch thick. "When it is tanned (ſays Dr. Grew) it is exceſſively hard, and thicker than the ſkin of any other terreſtrial animal." It is every where more or leſs covered with incruſtations, in the ſhape of galls, which are ſmall on the ſummit of the neck and back, but become bigger down the ſides; the largeſt are on the ſhoulders and crupper, the thighs, and around the legs, down to the feet; but betwixt the folds the ſkin is penetrable, and even tender, and as ſoft as ſilk, while the outward part of the folds is as rough as the reſt. This tender ſkin between the folds is of fleſh colour, and the ſkin of the belly is nearly the ſame colour and conſiſtence; but thoſe galls, or tuberoſities, ſhould not, as ſome authors have done, be compared to ſcales, as they are mere calloſities of the ſkin, irregular in their figure and ſymmetry in their reſpective poſitions. The ſuppleneſs of the ſkin in the folds gives the rhinoceros the power of moving his head, neck, and limbs, with facility. The whole body, except at the joints, is inflexible, like a cuiraſs. Dr. Parſons ſays, that this animal hearkened with a ſort of continual attention to any kind of noiſe; ſo that if he was even ſleeping, eating, or in ſatisfying other urgent wants, he inſtantly raiſed up his head, and liſtened till the noiſe had ceaſed.

In fine, after giving this exact deſcription of the rhinoceros, Dr. Parſons examines whether the rhinoceroſſes with a double horn exiſts, and having compared the relations of ancients and moderns; and the remains of this variety, found in the collections of natural objects, he concludes, with ſome probability, that the rhinoceroſſes of Aſia have commonly but one horn, and thoſe of Africa generally two.

It is certain that ſome rhinoceroſſes have but one horn, and others have two; it is not equally certain that this variety is conſtant, and depends on the climate of Africa or India, or that two diſtinct ſpecies may be eſtabliſhed from theſe differences. It ſeems that the rhinoceroſſes with one horn have it bigger and longer than thoſe who have two. There are ſingle horns of three feet and a half, and, perhaps, of more than four feet in length, by ſix or ſeven inches in diameter at the baſe. Some double horns are but two feet in length. Commonly theſe horns are brown, or olive colour, though ſome are grey, and even white. They have only a ſmall concavity, in form of a cup, under their baſe, by which they are faſtened to the ſkin of the noſe; the remaining part of the horn is ſolid, and very hard. It is with this weapon that the rhinoceros is ſaid to attack, and ſometimes mortally wound, the biggeſt elephants, whoſe long legs give the rhinoceros an opportunity of ſtriking them with his ſnout and horn under their bellies, where the ſkin is tender, and penetrable; but if he miſſes the firſt blow the elephant throws him on the ground and kills him.

The horn of the rhinoceros is more valued by the Indians than the ivory of the elephant, not ſo much on account of its real uſe, though they make ſeveral things of it with the chiſſel, but for divers ſpecific virtues, and medicinal properties, which they aſcribe to it. The white, from being the moſt rare, are alſo thoſe which they value moſt. Among the preſents which the king of Siam ſent to Louis XIV. in 1686, were ſix horns of the rhinoceros. We have ſeen in the king's cabinet twelve of different ſizes, and one of them, though mutilated, is three feet eight inches and a half in length.

The rhinoceros, without being ferocious, carnivorous, or even very wild, is, nevertheleſs, untractable. He is of the nature of a hog, blunt and brutal, without intellects, ſentiment, or docility. He is ſubject to fits of fury, that nothing can calm; for the rhinoceros which Emanuel, king of Portugal, ſent to the Pope in 1513, was the cauſe of the ſhip being deſtroyed in which he was tranſporting; and that which we ſaw at Paris was drowned in the ſame manner, in going over to Italy. Theſe animals, like the hog, are much inclined to wallow in the mire. They like damp and marſhy places, and ſeldom leave the banks of rivers. They are found in Aſia and Africa, in Bengal, Siam, Laos, Mogul, Sumatra, Java, in Abyſſinia, in Ethiopia, in the country of the Anzicos, and as far as the Cape of Good Hope. But in general the ſpecies is not ſo numerous, or ſo univerſally ſpread, as that of the elephant. The female brings forth but one young, and that at a great diſtance of time. In the firſt month the rhinoceros is not much bigger than a large dog; he has no horn when firſt brought forth, although the rudiments of it is ſeen in the fœtus. When he is two years old his horn is not above an inch long; and in his ſixth year it is about ten inches; and as ſome of theſe horns are very near four feet long, it appears that they grow till the half, or, perhaps, during the whole life of the animal, which muſt be long, ſince the rhinoceros, deſcribed by Dr. Parſons, was not come to half his growth at two years old, which makes it probable that this animal, like man, lives to ſeventy or eighty years.

Without the capacity of being uſeful as the elephant, the rhinoceros is equally hurtful by the prodigious devaſtation which he makes in the fields. He has no one advantageous quality while alive. His fleſh is excellent, according to the taſte of the Indians and Negroes: Kolbe ſays, he has often eaten it with pleaſure. His ſkin makes the beſt and hardeſt leather in the world; and not only his horn, but all the other parts of his body, and even his blood, urine, and excrements, are eſteemed as antidotes againſt poiſon, or remedies againſt ſeveral diſeaſes. Theſe antidotes, or remedies, extracted from different parts of the rhinoceros, are of the ſame uſe in the diſpenſatory of the Indians, as the theriaca is in that of Europe. Probably all thoſe virtues are imaginary:—But how many things are held in great eſtimation, which have no value but in the opinion of men.

The rhinoceros feeds upon coarſe herbs, ſuch as thiſtles and prickle ſhrubs, and he prefers this wild food to the ſweeteſt paſture of the verdant meadows. He is fond of ſugar canes, and eats alſo all ſorts of corn. Having no taſte for fleſh, he neither moleſts ſmall animals, nor fears the large ones, but lives in peace with them all, not excepting the tiger, who often accompanies, without daring to attack him; therefore I doubt, whether the battles betwixt the elephant and rhinoceros have any foundation;

they muſt at leaſt be ſeldom, ſince there is no motive for war on either ſide; and, beſides, no ſort of antipathy has been obſerved between theſe animals. Some even in captivity have lived quietly together, without giving offence or provocation. Pliny is, I believe, the firſt who has mentioned theſe battles betwixt the rhinoceros and elephant. It ſeems they were compelled to fight in the ſpectacles at Rome, and probably from thence the idea has been taken, that when in their natural ſtate they fought as deſperately, but every action without a motive is unnatural; it is an effect without a cauſe, which cannot happen but by chance.

The rhinoceroſſes do not herd together, nor march in troops like the elephants; they are more wild and ſolitary, and perhaps more difficult to hunt and ſubdue. They never attack men unleſs provoked; but then they become furious, and are very formidable. Neither ſcymetars, darts, nor lances, can make an incifion upon his ſkin, which even reſiſts muſket balls; the only places penetrable in his body are the belly, the eyes, and around the ears; ſo that the hunters, inſtead of facing and attacking this animal, follow him at a diſtance by his track, and wait till he lies down to reſt or ſleep. We have in the king's cabinet a fœtus of a rhinoceros, which was extracted from the body of the mother, and ſent from the iſland of Java: it was ſaid, in a memorial which accompanied this preſent, that twenty-eight hunſmen having aſſembled to attack this rhinoceros, they followed her at a diſtance for ſome days, one or two walking now and then before to reconnoitre her ſituation; by theſe means they ſurpriſed her when ſhe was aſleep, and ſilently came ſo near that they diſcharged at once their twenty-eight guns into the lower parts of her belly.

By the deſcription given by Dr. Parſons, it appears that this animal has a good ear, and even very attentive: it is alſo affirmed, that his ſenſe of ſmelling is excellent; but it is ſaid that he has not a good eye, and ſees only thoſe things which are before him: his eyes are ſo ſmall, and placed ſo low, and obliquely, they have ſo little vivacity and motion, that this fact ſeems to be confirmed. His voice, when he is calm, reſembles the grunting of a hog; but when he is angry, it is ſharp, and heard at a great diſtance. Though he lives upon vegetables, he does not ruminate: thus, it is probable, that, like the elephant, he has but one ſtomach, and very large bowels, which ſupply the office of many ſtomachs. His conſumption of food, though very great, is not comparable to that of the elephant, and it appears, by the thickneſs of his ſkin, that he loſes much leſs than the latter by perſpiration.

## SUPPLEMENT.

IN the month of September, 1770, another rhinoceros was brought to the royal menagerie, which was ſaid to be only three months old; but I am perſuaded it was as many years, for it was eight feet two inches in length, including the head, five feet ſix inches high, and eight feet two inches in circumference; by the 28th of Auguſt, 1781, it had increaſed ſeven inches in length, three inches in the height, and ſeven inches in circumference; and on the 12th of Auguſt, 1772, it meaſured nine feet four inches in length, including the head, ſix feet four inches high at the crupper, and only five feet eleven at the withers. In ſome places its ſkin was ſpotted with black and grey, and in others it was in deep furrows, having the appearance of a kind of ſcales.

This animal had but one horn, which was brown, and of a very hard ſubſtance ; and in all other reſpects he nearly reſembled the deſcription we have already given.

Mr. Bruce has remarked, that my conjecture, that in the interior parts of Africa there were rhinoceroſes with two horns, was exactly the caſe, for he ſaw none in Abyſſinia but what had one ſituated near the noſe, which was of the common form, and the other rather higher on the head, ſharp at the point, and always ſhorter than the firſt. M. Daubenton received a letter from M. Allemand at Leyden, in 1776, in which that gentleman ſays, "In a paſſage M. de Buffon has quoted from Mr. Parſons, it is ſuppoſed, that the rhinoceroſes of Aſia have but one horn, and thoſe of the Cape of Good Hope have two, but I am inclined to believe the oppoſite is the fact, for the heads of thoſe I have received from Bengal, and other parts of India, had always two horns, and thoſe which came from the Cape had but one." This remark of M. Allemand we may conſider as a confirmation of our former obſervation, that the rhinoceroſes with two horns form a variety in the ſpecies, and may be equally found in Aſia and Africa.

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